

THE FILM FINDS ITS TONGUE

FITZHUGH GREEN

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To Julius Gilder

Sincerely

Albert Warner

July 10th 1929



Harry M. Warner, President Warner Bros. Pictures, Inc.

The Film Finds Its Tongue

by
FITZHUGH GREEN

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THE FILM FINDS ITS TONGUE

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Fitzhugh Green

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THE FILM FINDS ITS TONGUE

PART I

THE MEN

HISTORY OF THE WARNERS WHO PUT THE TALKIES
ACROSS

CHAPTER I

FOUR MEN STAKE ALL

ON the night of August 6, 1926, a drama was being shown on the screen of a New York movie theatre. On that same night and in the same Broadway theatre another drama was actually taking place in the lives of four men who sat well back in the same audience that watched the film.

Before the screen drama was solved the terrific problem that faced this little group of men would also have been solved. Whether they would be rich or bankrupt, wise men or fools, successes or failures, was being decided by the large public jury that sat about them.

One of the men wiped his mouth nervously with his hand.

"Maybe we win," he muttered.

The other three only gripped the arms of their seats more tightly and in grim silence awaited the verdict.

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The men were Harry Warner and his brothers in a relatively small film firm known as Warner Brothers Pictures, Inc. They had sunk over \$500,000 in this one picture. They had invested nearly \$3,000,000 in a gigantic gamble that the American public would like moving pictures that *talked*.

They had struggled for twenty years that this night might be a success. They had fought with other film leaders for their own firm's very existence. One of their brothers, Sam Warner, was soon to give his life that they might succeed.

They had known that America is too big to win by halfway measures. So the greatest musical stars in the world had been recorded for this opening night. The trouble had been that those artists whom they wished to employ to sing for their numbers were all under contract to one or another organization. Their "release" had to be purchased.

For this purpose, the Metropolitan Opera Company of New York had been approached. After some warm bargaining Harry Warner bought the necessary release for the sum of \$1000 a week,

\$52,000 a year! However, this was exclusive; no other talking picture could use these stars.

But that merely left the new Vitaphone Corporation free to negotiate with any of the Metropolitan's contracted artists. And not completely free. Many of these artists were contracted to one or another phonograph company, which had likewise secured a release from the Metropolitan, and had agreed to make records for no other company.

Finally, the Brunswick-Balke-Collender Company granted a release to its people for \$2000 a month—\$24,000 a year. "Release" still meant only that the Warners could try to get the stars.

The Victor Company, which was going to make the wax records for the sound pictures, had to be contracted with. By virtue of this business arrangement between the two, Victor granted the Warners an exclusive license to make talking pictures of artists under contract to Victor, the royalty being adjusted in the prices charged for the records.

It was all very complicated, expensive and discouraging.

Besides these arrangements, which merely

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cleared the way for making individual contracts with the artists, there was the matter of getting the right to use copyrighted music. Virtually all music other than folk-songs is the property either of its composer or of some music publishing house, and is protected by law from use "for profit" without securing the permission of the owners. Any one who uses music for profit uses hundreds of compositions. So to save the mass of individual dealings that would be required, composers and publishers are banded together into an Association which has the power to grant a license to use the works of any of its members, to collect a flat royalty fee and to distribute it among the members.

When Warners approached this association they learned they would have to pay a royalty of \$2000 a week, \$104,000 a year. There was nothing to do but sign a contract for this amount.

No wonder the men of whom we speak were squirming in their seats that night.

However, they could now negotiate with any important artist and use any important music in the world.

Next to secure artists. Individual contracts

were made with many, among them Giovanni Martinelli, Marion Talley, Mischa Elman, Efram Zimbalist, Harold Bauer, Anna Case. They were not at all anxious to sing. Martinelli was finally persuaded to make two numbers for \$25,000. After that, the others grudgingly followed suit.

And next to do some recording. How it was done is a story in itself. That it was done at all is miracle enough for this moment in our record.

The Manhattan Opera House in New York, which had not heard music for so long, was used. Orchestras tuned their instruments, famous violinists strode onto that stage and sent forth their inspiring notes, voices called "golden" filled the old building and were imprisoned in the yellow wax of the new sound record and simultaneously on the fragile celluloid of a movie camera.

There were difficulties, of course; but in those first days the difficulties were fortunately not with the artists. Most opera singers and concert instrumentalists were thoroughly used to recording for the phonograph and to singing over the radio. To them this new work was merely a repetition of that common business. They were past the days of "recording fright," that strange malady

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which seizes upon strong men and makes them helpless. True, the camera was new to many of them; but the camera in its new sound booth was not as prominent as it was when it had stood alone. The performers' thoughts were concentrated on the microphone rather than on the camera; and they were not afraid of the microphone.

Work on that first Talking Picture had started late in April, 1926. It took three months to get the first program ready, but by August 1st it was done, and wonderfully done. The Warners were ready to bring it to the public. And though confident of ultimate success they had that painful anxiety that the daring speculator usually feels who stakes his pile on a single throw.

The attention commanded by the preliminary announcements of the first public "sound-film" performance showed the wisdom of going to the very top of the amusement market for performers. Martinelli, Talley, Elman, Case, Hadley, the Philharmonic Orchestra—these were names too important to overlook. They sprang like spot-lights out of the advertisement page and caught the eye of critics, public, and the film industry.



Opening of the Warner Bros. Theatre, New York City, August 6, 1926

No one with any pretensions to keeping up with the world of the theatre could afford to overlook the experiment.

There was an immediate demand for seats for the first night. Yet the advance sales were not great. People were waiting to see what the first night audience and the critics would say.

Four feverish men were also waiting.

If anything could have been a test of sound pictures this was it. It was being put out as entertainment; it was being launched in the most competitive entertainment market in the world, in competition with the stage, with film and with music. It would be attended by a sophisticated, critical and somewhat cynical audience; an audience that had rejected talking pictures time and time again. It could literally be made or damned by the verdict of that audience. The whole country would know New York's judgment and in some measure be governed thereby.

And if talking pictures were damned on this night, the damnation would be a tremendous obstacle to taking the thing further. It would, in fact, be a pretty good indication that the talking picture was neither good nor acceptable amuse-

ment. If, on the other hand, it were praised, the rewards would be prodigious.

It is only fair to say that there had been a special showing on August 4th, for all those who had been engaged on the picture. The Warners and their associates seeing the performance had been almost startled at what they had wrought; it was so much more than they had conceived.

The next night, August 5th, there had been a similar showing for the personnel of Western Electric and the Bell Laboratories who had worked at the electrical end. They, too, had been impressed.

But on the night of August 6th, when for the first time the Warner Theatre opened its doors to admit the general public to this newest twentieth century amusement, there were many anxieties, large and small, in the breasts of those interested. To the four men the night was fraught with apprehension.

Over \$2,000,000 in money had been paid out or lay in commitments behind this one performance, quite apart from the fortune that was tied up in the Barrymore *Don Juan* picture. Even in a

day of gigantic motion picture investments this was large. And the ordinary motion picture investment was a reasonably sure thing, while this was a hundred per cent gamble. . . .

Slowly the theatre filled. Every seat was sold, and occupied. It was a curious, speculative audience, there on unfamiliar grounds, uncertain what it was about to see, or how it should be received. It was prepared more to see a scientific marvel than to be entertained.

The four men were prepared—for anything.

Eight-thirty arrived. The lights dimmed; babble of voices hushed. A white beam shot overhead and splashed upon the screen; the beam from the movie projector. But it fell first on the draped curtains on the stage, revealing a subtitle. The curtains parted on a conventional cinema screen. The title gave way, familiarly, to a photograph . . . a man . . . Will H. Hays. He advanced to the foreground and there was a little sound. It penetrated through people's minds that they had "*heard*" him clear his throat.

Then, suddenly, the picture began to speak!

The audience hung on its every word, half expecting something to happen . . . that the

machinery would break down. In the first trials of every machine there is a good chance that it will break. One lacks confidence in it.

The phenomenon was like watching a man flying without wings. It was uncanny. The shadow of Will H. Hays was true to life. His lips moved and sound came forth. His was a short speech; when it was done and he stood there, people found themselves clapping, unconsciously. As if he heard them, he bowed. He seemed to be present, and yet he did not seem to be present. No wonder a scientist next day called it: "The nearest thing to a resurrection!"

As the picture disappeared a buzz of talk ran through the theatre. Then silence again as the second number appeared: the Philharmonic Orchestra playing the "Tannhäuser" overture.

Sweet music reached out from the huge invisible horn behind the screen and wrought its spell upon the listeners. It was familiar music, marvellously played. It swept on through the cadences of the overture; the quiet, half-religious opening, the seductive melody of the Venusberg, the crashing finale . . . and during it the photographs, leaping from one section of the orchestra to another,

focusing on busy musicians bent over their instruments.

As the movie image of Henry Hadley turned to his auditors after the last note he "faced" a theatre full of people applauding spontaneously—*yet he wasn't there!*

The ice had been broken: the talking picture had now an audience for the first time in three decades.

Throughout the rest of the first half of the program the audience sat breathlessly drinking the novelty in. It found that it liked film that talked. It found it possible to judge such a film; it liked some of the numbers better than others. It found itself fascinated by the intimacy with which the artist was revealed; found itself watching Elman's fingering, Martinelli's tone formation; found itself brought closer to those artists than ever before; even found itself, presently, gaining an illusion that the artists themselves were *present!*

When the lights went up for intermission the audience cheered, then gave way to a concentrated buzz of excitement. History was being made and they were there to see the event, was the way every one felt.

The second half was a conventional screen drama—also with the new talking-picture attachment. But before its stirring plot was done the little group of men who waited received their verdict. The uncontrollable enthusiasm of the audience gave it:

"You win!"

It was the first great triumph for the "Talkies," as the public instantly named them. And it was a glorious tribute to the vision of the men who backed them. But, alas, it was a triumph and a tribute tempered by the fact that, though Talkies had come to be a reality, there was no immediate way they could be distributed to the American public.

Special projection mechanism was required to put a Talkie on the screen. The whole moving picture world was determined that there should be no such volcanic eruption in their business as this new sound film implied. They were determined that theatres should not get projection apparatus for it. They were determined to snuff out the commercial lives of the men who had dared to start it all.

Not for nearly two years was the triumph to

be made secure. Not until 1928 did the other motion picture titans capitulate. Not until last Thanksgiving (1928) was Hollywood transformed from a Movie City into a Talkie Metropolis.

The final convulsion—not too strong a term either—came at a time when the movies were already in a state of turmoil. In 1927 an economy wave had swept Hollywood. Companies were retrenching. Salaries were cut from top to bottom. Long term contracts began to be denied the stars. Studios were being shut down. The big lots were quiet for the first time in years. Could it be that the movie's golden flow could not go on forever?

Then, like a bolt of lightning, came the Talkies.

The biggest men in the movies began to sit up and rub their eyes. This thing they had one and all condemned—all except the little group we have named—was riding like a genii from the lamp of one company and bewitching the public.

The Talkie boom was on!

And a curious world asked, "Who are these men that started it all?"

CHAPTER II

EARLY STRUGGLES

THERE was in 1924 one company of motion picture producers which had not been approached by any of the important inventors hoping to interest the theatrical world in talking pictures. Taken by and large as part of the motion picture industry, this one was not an important company. It could not compare financially with the Hollywood giants. And yet, as perhaps the dominant figure in a motion picture group that could not be neglected, the "Independents," it had great significance. The strands of its history were inalienably woven into those of the screen.

As always, where the giants of an industry oppose change while Independents welcome it, this small company was to prove far more flexible in its ability to alter its viewpoint than were the more cumbersome organizations.

This company was Warner Brothers Pictures,

Inc. Warner picture activity had had its beginning when, in 1903, two—Sam and Albert—of four brothers secured a projection machine and a print of *The Great Train Robbery*. This classic was the second “big” photoplay ever made and the first to command widespread attention. Sam and Albert Warner toured the State of Pennsylvania giving exhibitions of their eight-hundred-foot thriller. Their investment was \$150.00; their returns were so great that both they and the other two brothers—Harry and Jack—decided that thereafter their lot would be cast with the motion picture world.

In that year of 1903 the motion picture was fourteen years old; the motion picture projector eight. So far the machines had been more a novelty than anything else. Subject matter of films had consisted of short bits of action, mere episodes without plot or attempt at story structure. There had been no theatres devoted exclusively to their presentation; they had been shown as part of vaudeville programs.

For a year interest had lagged. Orders for films had fallen off; and the Edison studios at East Orange, New Jersey, chief makers of film,

had, in an attempt to recapture the business, conceived the idea of utilizing the screen for the presentation of dramatic action. One of the most popular of the early bits had been a fifty-foot reel showing a fire engine on its way to a fire. This idea was now expanded to a five-hundred-foot single reel picture called *The Life of an American Fireman*, which told a complete story. It involved not only the answering of an alarm, but the rescue of a woman and child from a burning house—the Fire Chief's!

Success of this picture was what had led to another and even more pretentious effort, *The Great Train Robbery*, in 800 feet.

This film was a thriller, a super-production of its day. It got immediate reaction, both in box offices and from those who saw an opportunity to make money by exhibiting photoplays. For the first time a motion picture was being put forth as entertainment which would stand on its own. With the small initial investment required for a projector and a print of this film many a man took a plunge into the amusement world and stayed in it the rest of his life.

Such were the Warners.



The first traveling road show—Sam and Jack Warner at Nixon's Apollo Theatre, Atlantic City, with "Dante's Inferno." The heavy-set man is the lecturer, Stephen Bush. About 1904.

They were very young. Sam was only sixteen; Albert a year or two older. But both were mature beyond their years, probably because their life had never been an easy one.

The family was poor; just emigrants from Poland. Harry, the oldest, also Albert and Sam, had been born there before their parents joined the stream of movement to a new and easier land. Harry was six when the family landed in Baltimore. Jack was born in London, Ontario, the family having moved several times after landing. There were, besides these, three girls and another boy. The father was a cobbler.

The boys went to work early—just as soon as they were able. All four showed certain dominant traits. Sam and Albert were big youngsters, to be over six feet, large-boned, handsome men; Harry had keen business acumen. Sam was restless, a mixer, and of a distinct mechanical leaning. Such a thing as a motion picture projector would attract him far more by its neat, intricate operation than by the possibility of making money with it. Jack, though very young at the time, was soon to prove the more temperamental,

artistic one of the four. He shared with Harry a sense of drama: he was a born showman.

In the summer of 1903 Harry was in business in Youngstown, Ohio; he had a bicycle shop though he was also in the shoe repairing business there since the fall of 1896 when less than 14. The bicycle craze was at its height; and since 1900 he had been profiting by it. Albert was with him. They sold bicycles "on time"—so that they would get the repair work. Meanwhile they continued to operate the shoe repairing place with hired men. They even ran a grocery and soda fountain. The well known Rae Samuels worked behind the counter.

Sam had tended store in the shop at various times. Sometimes he went off on work of his own. Once for two years and six months he was a railroad fireman on the Erie Railroad. During the summer of 1903 he was employed at an outdoor park at Cedar Point, near Sandusky, Ohio. There he had had his first contact with the amusement picture world when he saw the Kinetoscope and its projected motion picture.

The machine fascinated him just as twenty-two years later the talking picture machine was

to fascinate him. He returned to Youngstown full of the idea.

So it came about that Sam and Albert Warner went off in 1903 through the towns of Pennsylvania and Ohio showing *The Great Train Robbery*. There was money in it; much more than in running a bicycle shop, or almost any other small business.

Dozens of others were learning the same thing. *The Great Train Robbery*, which had cost almost nothing to produce, was making a small fortune for Edison and for the few pioneers out with their projection outfits.

Within six months Edison offered a sequel, *The Great Bank Robbery*. Literally every one else possessed of a motion picture camera got busy at the same time and hurriedly turned out one or more similar pictures.

It was no longer necessary to take to the road. The Warner Brothers talked the matter over. Their bicycle shop was closed. The projector was set up in a store in Newcastle, Pennsylvania. They furnished it with 91 chairs rented from an undertaker; and it became one of the hundreds of motion picture theatres that opened its doors during that winter of 1903-1904.

Sam operated the projector. Harry and Albert attended to the business end. Jack, fifteen, was handy boy. On occasion he sang songs for the illustrated slides. There was in the four of them a unique combining of faculties as well as an extraordinary loyalty. Each admired the particular abilities of the others; each fitted into his niche, pulled his weight in the team. But Harry was always the leader. Together they stood alone, without need of outside help.

During those early days there were only two factors in the motion picture world, the Producer and the Exhibitor. These two dealt together directly, the transaction between them being the outright sale of the film.

This condition was a survival of the peep-show days, when a fifty-foot reel—costing \$15.00—was shown once to each one-man audience and was not worn out until interest in it had finally abated. But now that photoplays were coming out and being shown to audiences of a hundred, their money-making life in the hands of one man was short. A week at most, and they were financially done. Yet physically they remained practically as good as ever.

These 800- and 1000-foot reels of film cost \$100. They were still perfectly good when the exhibitor had extracted all the money possible from their use in any one spot. If he wanted to make more, he had to move his show to another location. That was what Sam and Albert Warner had done with *The Great Train Robbery*.

It was soon seen that permanent theatres demanded lots of film—a new show every day if the town was small and the most was to be made out of the theatre. This situation gave birth to the Exchange idea: originally just what the words connote—theatres exchanged film, reel for reel, saving half the cost. Soon it led to the introduction of the Distributor into the scheme of things. The Distributor—still called the Exchange—bought film from the Producer and rented it to the Exhibitor. A theatre, then, instead of paying \$100, could get a subject for \$15.00 or \$20.00. The Warner Brothers got two changes of program a week for \$40.00.

Profits at this rate were good. Too good for the Exchange operators. Film rentals began to go up. Warners were notified that thereafter their rental would be \$100.00 a week.

The Warners had not operated their Newcastle theatre for a year when the situation became obvious to the financially-minded Harry. The real money, the big money, in the motion picture business lay in film distribution. No theatre could begin to show a profit comparable to that gained by dipping into the profits of twenty—thirty—a hundred theatres.

So in 1904 the Newcastle house was sold and the four Warner Brothers formed the Duquesne Amusement and Supply Company, a film exchange that shortly served a circuit of nineteen theatres.

Those were the days of the motion picture patent wars, when Edison, Biograph, Vitagraph and others were involved in a struggle for the control of the industry through ownership of the basic patents covering cameras, projectors, etc. They were golden days for Exchange men, for competition among producers was rife and film was cheap. Theatres multiplied by the thousands. And while the motion picture spread like a forest fire over the country fortunes were made out of ten cent pieces.

Not until December 18, 1908, did the deadlocked producers, led by J. J. Kennedy of Bio-

graph, come to the conclusion that they were cutting each other's throats to no purpose. The upshot was the formation of the "Trust"—the Motion Picture Patents Company—in which Edison, Biograph, Vitagraph, Lubin, Selig, Essanay, Pathé, Kalem and Melies pooled their patents and their claims to special rights.

The Patents Company proposed to maintain a firm grip on the industry; and to that end determined that only studios licensed by them would be allowed to make pictures; that only licensed exchanges would be allowed to deal in them; and that through the Exchanges a license fee of \$2.00 a week would be collected on every projector showing film made by members of the Patents group. No unlicensed film could be handled and no licensed film could be served to any but licensed theatres. The entire industry, production, distribution and presentation, was bound together in a tight, all inclusive scheme. In another sense, the wolf of monopoly had it by the throat.

In short, just as the Exchange men had "taken it away" from the theatres, the film makers were now moving to capture the lion's share of the

enormous amount of money beginning to be paid in at box offices all over the country.

Unfortunately for these plans, there arose a handful of bitter malcontents who refused to abide by them. Among theatre men and Exchange men there were "Independents" who stood out and who formed a market for independently-made pictures. Such pictures began to be made in all sorts of holes in the wall. Film was brought in from abroad. Rex, Yankee, Actophone, Tanhouser, and similar "wild cat" pictures appeared. Finally, in the summer of 1909, Carl Laemmle, who owned a big system of Exchanges, decided to go into production to satisfy their needs. He formed the Independent Motion Picture Company which became known as the "Imp."

The situation thus began to get a little out of hand as far as the Patents Company was concerned, with the result that that company decided to distribute its group products directly, instead of through exchanges owned by others. On April 10, 1910, the General Film Company was organized and proceeded at once to buy up the desirable Exchanges and force all others out of business, through their control of the license situation.

They forced the Duquesne to sell to them on October 10, 1910.

Warner Brothers, among those with a streak of resistance, had been aligned with the Independents; so the events of the preceding year had told heavily on their prosperous business. Now the Duquesne Amusement and Supply Company, on which they especially depended, suddenly ceased to exist. For the future the four brothers now turned to the newly formed Independent Motion Picture Distributing and Sales Company, which had been created as a counter move to the General Film Company and was to handle the product of the Independent producers.

Warner Brothers became sole distributors of the Sales Company's films for the Pittsburgh District.

But dissension and suspicion always ran rife among the Independents. The career of the Sales Company was a stormy one; it was constantly under the fire of the Patents Company and there were endless legal tangles. Most of its pictures were ground out surreptitiously, without the slightest attempt at quality. At last, in 1912, the rather excitable Independents split into two fac-

tions headed by Harry E. Aiken and John R. Freuler, who formed the Mutual Film Corporation, and Carl Laemmle, who formed Universal. Internal law suits started, and with them strong-arm methods, raids, attacks, slugging, thuggery.

The Sales Company now ceased to be of any importance, and the Warner Brothers found themselves decidedly on the fringe of things. Finally they sold out in 1912 to an independent company in Pittsburgh.

There was only one sure way of getting pictures for distribution in those troublesome times, and that was to make them themselves. So in 1912 the four of them decided to go to New York and to produce. They formed a company called Warner Feature Films, Inc. This company was successful. Then Selznick and Powers were admitted and finally succeeded in getting control. The Warners then decided that things were being badly handled and got out. The only way they could extract their name from the corporation was to surrender all of their stock. This was a bitter price to pay for it left them without capital; but it also left the Warner name unfettered. The concern itself failed a year later. But the Warners con-

tinued in business with what little money they could raise, as a partnership called "Warner Brothers."

The new firm endured for nearly ten years—years during which its members passed out of their late twenties and into their late thirties. It was not an important company and it had no spectacular rise; but it made money. Its product was at first often the "quickie"—a cheap picture ground out as quickly as possible for consumption by small houses.

The partnership's one outstanding production in this period was *My Four Years in Germany*, a picturization of Ambassador Gerard's book made in 1918; and which, though the industry prophesied its failure, was a great success.

Though these ten years gave the Warner Brothers no great fortune, they did give them a thorough groundwork in the making of motion pictures that would stand up under competition. At the same time the Warners learned how to turn out a film without spending a fortune in overhead salaries. They learned all sorts of shortcuts to production. They learned how to make both ends meet. And they acquired acreage

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in the very heart of Hollywood at farmland prices.

As always, Sam and Jack handled the production end; while Harry and Albert carried on the business.

CHAPTER III

THE FIGHT FOR CONTROL

AFTER the war the motion picture emerged as America's amusement giant and as the battlefield of titans. There were twenty thousand theatres in the land and tens of thousands of miles of film ground through their projectors every week. The business of making and distributing film had come to be one involving money by the hundreds of millions.

The money lay in distribution, not in production. Picture quality was fairly standardized, one was about as good as another; one cost about as much as another to make. If, however, one could be shown in five thousand houses while another was shown in three thousand, profits would be nearly doubled.

Production was a consumer of money. Presentation brought money in from the public. Distribution acted as the go-between, financed the

production, collected from the exhibitor—and made the huge profits.

In most cases distribution and production were parts of the same organization. There now began a tendency to annex presentation to its movie brethren; motion picture companies started buying in chains of theatres. These laid the foundation for the gigantic commercial structures of today.

After the war, picture costs mounted tremendously when super-productions began to be the order of the day. The old-time "quickie" no longer had much of a place in the sun. Moreover, a producing organization needed an enormous amount of capital. Not only did a picture have to be paid for as made, but returns on it did not come in for from six months to a year. The big producer had to have sufficient cash to finance from ten to fifty productions at once!

The day of the small independent producers was about done. The four Warner Brothers, without capital, without their own distribution channels, unable to command enough money. So in 1923 they formed a corporation, Warner Bros. Pictures, Inc., and turned their business over to it.



Warner Bros.' first theatre, The Cascade, Newcastle, Penna., 1903

For two years they operated with increasing success. In 1923 seven Warner Brothers' Classics were produced, among them *The Beautiful and Damned*, *Main Street*, *The Little Church Around the Corner*. In 1924 eighteen "Classics" were produced.

Additional buildings began to go up on the studio lot in Hollywood which had been almost farm land when bought. Today it is a community covered with structures of all kinds and supporting a small army of people. In 1925 some stock was sold to a bankers' syndicate at less than \$10, the same stock that is now listed on the "big board." About \$2,000,000 of new capital was added to the corporation.

The public had begun to respond.

Money was coming in at last. The pictures began to show a true modern showmanship. That Warners' advance was being carried to the quality field was indicated when John Barrymore was engaged on *The Sea Beast*.

The trouble was that Warners' had no adequate and reliable means for getting their product to the theatres. They were in vital need of a system of distribution and of far greater facilities for

production in order to keep abreast the times. Competition was so keen that theatre owners soon saw when a producer began to limp and turned to the producer upon whom they could count.

The existing system of Warner distribution consisted of a large and loose organization of "agents," all of whom were independent, and all of whom took large percentages of profits for their territories. Worst of all, their various contracts were due to expire in September, 1925; foreseeing which, they quickly got together in the spring for the purpose of planning a strong-arm move to close new contracts in their favor when the time came. They believed that Warners were at their mercy.

Warners were—almost. But Harry Warner concocted a bold plan to beat them. He made up his mind to buy Vitagraph, and in thus one stroke possess new machinery for production and a new means for outlet. All he needed was a few million dollars.

The only trouble was that the existing agents were organized and the bankers somewhat suspicious. It was just one more painful moment in Warner history. Only these moments were get-

ting so big and consequential that they would have frightened less courageous men.

Vitagraph was one of the oldest motion picture companies in the country. It had been founded back in the early days of the art by Rock, Albert Smith and Commodore J. Stuart Blackton. Vitagraph had exchanges of its own in the thirty principal cities of the country and an elaborate system of foreign exchanges covering the market outside of the United States. But Vitagraph was going down hill; while Warner Brothers, new and sturdy and making their bid for a place in the sun, were coming up fast. There was life, and push and vigor in the young company.

When Harry had gone to the bankers and for the first time had gotten outside capital, he raised \$2,000,000 from stock to finance his "agents" on a larger scale for the new contracts that then had to be made. Now when he got word of their collusion to hold him up still further he began to think of other forms of outlet. He saw that the day had come when he must possess his own distribution facilities. He remembered, then, that Blackton of Vitagraph had once been in his office and had spoken of wishing to sell Vitagraph.

Harry hurried over to Vitagraph immediately—a Wednesday morning it was—and quietly asked them what they owed. Their figure started with \$400,000. They worked on it continuously until Sunday night, when they had arrived at a total of \$980,000! Harry told them that was the limit; they'd have to cover the rest. Vitagraph was losing money at the time. At 3 A.M. Monday morning, then, Harry asked what they wanted for Vitagraph. The directors of the business went into another room for a quarter of an hour for a council of war. On coming out they said that they wanted \$800,000 besides taking over the debts up to \$980,000. Harry agreed; the lawyer drew up a paper in long-hand which they all signed, and Harry gave them a check for \$100,000.

It was cutting a gordian knot; but the sword was as likely to cut its owner as the knot.

Next day Harry went to the bankers—who had advanced the capital on the strength of the *agent*, not the exchange, idea. Putting on a bold front he told them what he had done. Asked what it involved, he said a million and a half; they told him he'd better get capital to the extent of a

million more (for a "cushion"), and it finally boiled down that he got *four million!* Bankers were beginning to believe in the Warners.

Vitagraph, however, was committed to distribute twelve pictures between then and September 1st (when the Warner agents' contracts expired). Yet Harry's contract with the agents required him to furnish pictures to no one else! He was between the devil and the deep blue sea.

The agents were finally bought out for large profits to them; he felt it was the only fair course to take. All of them owed him money because of the "note" method of dealings that existed between him and them. This credit totaled several hundred thousand dollars. Moreover, using his financial brains, he found in Vitagraph money that had not been expected. The total cash velvet (this and what he got from the agents) amounted to about \$1,000,000. To his astonishment, he had not only put the deal through, but was better off than he had ever expected to the tune of a cool million!

This was in the spring of 1925, almost a year before any Warner saw the Western Electric

demonstration of their loud speaking device that was to lead the talking picture.

In 1925 Warners' had scheduled forty picture releases. To this they now added the Vitagraph twelve, making fifty-two pictures for the year. They went into frenzied production on the coast. By the spring of 1926 Warner pictures were bringing in real money. The whole corporation was paying expenses; Vitagraph losses had been stopped; and the next year's production schedule was cut so that money could be put into quality rather than so much quantity.

Meanwhile another ferment was working. Sam Warner had many friends, friends among all the strata of the theatrical profession and in many odd spots outside their world. With his penchant for things mechanical he had always had a liking for people who worked with such things. He knew hundreds of "operators," electricians, men who used their hands as well as their heads. Such people had an extraordinary affection for him, and esteem for the other Warner brothers. All through the Independent motion picture world the Warners had a reputation for square dealing. They were liked by the rank and file. Their

loyalty and affection for each other, too, made them stand out.

Indeed, the Warner lot in Hollywood and their office in New York had that "family" feeling so associated with picture-makers in their early days and now persisting only in the smaller, more oppressed companies. Old employees called the Warners by their first names, and do to this day.

"Good morning, Harry," says the janitor to the head of the 1929, \$500,000,000 corporation!

One of Sam's best friends on the lot was a scrappy, excitable little Irishman with a genius for electricity—Frank N. Murphy, Chief Electrician of the company.

Murphy had been in the theatrical business all his life. Originally a theatre electrician, concerned chiefly with stage lighting, he had first touched the movie world while touring the Pacific Coast with the immortal Pavlowa early in 1916. In Culver City Tom Ince was making *Civilization* at the time, and having difficulty lighting certain scenes that he was attempting to shoot at night. Lighting technique in those days was not what it became later.

Pavlowa's company carried its own lighting

equipment. When a call came to the theatre for lights and electricians Frank Murphy went out to the Ince Studios, handled the lights, and the scenes were made.

Murphy was blind for four days afterwards. He swore he would have nothing to do with movies again.

But he liked the Pacific Coast. Out there again with another road company two or three years later he met Sam Warner. Warners' were then making Al St. John comedies, featuring St. John who had just left Keystone. Murphy and Sam Warner "clicked," and Murphy went to Warner Brothers, to become, shortly, their Chief Electrician. This is important to our story.

Another friend of Sam Warner's was a shrewd, quiet, amiable little man named Benjamin Levinson, late a Major in the United States Army, and before that connected with the infant art of radio. Levinson had been with the Marconi Company in the days of its 1913 and 1914 attempts to establish wireless service to the Hawaiian Islands and Japan. He knew every one on the coast that had anything to do with radio.

Now he was Pacific Coast sales representative



Major Benjamin Levinson, Charles Wellman, F. N. Murphy, at the first broadcast from Warner Bros. Studio

of the Western Electric Company, who were to be the electrical parent of the Talkies.

Levinson had first touched the motion picture world through Western's Public Address System, conceiving that it would be useful in the handling of large crowds during the filming of spectacles. He had sold several of them to one company or another in Hollywood. Incident to these attempts to market it he had approached Warner Brothers and met Sam Warner.

Warners' did not buy a public address system; but the contact between Levinson and Sam developed into friendship. Whenever the Western Electric man was near he would drop in for a chat.

He met Murphy, and became "Benny" to both Murphy and Sam Warner. The cogs in the machine were beginning to mesh.

In that winter of 1924-1925, when Warner Brothers Pictures, Inc., were making their bid for a place in Hollywood and the moving picture sun, they had money enough, gained from their current productions, to think of publicity in a way hitherto denied to them. Radio was sweeping the country; the establishment of a broadcasting station seemed like a good progressive

way to get the name of a good, progressive company before the world.

The cost of a new station was found to be prohibitive, but during those days some of the radio broadcasting pioneers were learning that they had bitten off more than they could chew. It so happened that, opportunely, there was a station for sale—second-hand—in Los Angeles. Warner Brothers bought it.

One bright morning it arrived in front of the studio; nine truckloads of radio apparatus. And not a soul knew what to do with it!

"How long will it take to install it?" Sam Warner asked Murphy.

"How long?" Murphy relayed the question to Levinson. It was Western Electric Company apparatus, and Western was supervising the installation.

"Three weeks or a month," came the answer.

"I want it running in a week," declared Sam. Levinson threw up his hands. "Impossible!"

The station was running in a week. That was Western's first contact with Warner energy.

Sam Warner and Murphy, neither of whom had previously had anything to do with radio, were

fascinated by the new apparatus. They spent hours poring over the mysteries of vacuum tubes, amplifiers, microphones, monitors, loud speakers.

They were scrutinizing the embryonic ganglia of the Talkies!

Thus through these friendships of Sam Warner's fate conspired to bring the talking picture to Hollywood even while the leading lights of the motion picture industry were giving it the cold shoulder. Rejected by business, it wormed its way in through the loophole of personal acquaintance.

CHAPTER IV

THE TALKIES ARE BORN

THE Warners had no better chance than any one else to get into the Talking Pictures. They could just see a little farther.

For the Talkies were a laboratory actuality in the fall of 1924. The Western Electric Company, which was the manufacturing subsidiary of the great American Telephone and Telegraph Company, had by then made several demonstrations of Talkies in their shops. They used local talent; an orchestra and singers; and they had introduced such things as a man ringing a bell, speaking, etc. The company had set out to interest the motion picture world in what the inventors (the Western Electric engineers) were sure was something new and wonderful. They felt very deeply it was bound to be a success.

But the motion picture people would have none of it. The idea was peddled about to all the more

important of them: it won not a spark of response. "Talking Pictures are the bunk!" was the unanimous verdict. The device seemed destined to stay on the shelf forever.

Apart from the amusement world, however, there seemed other uses to which it might be put. It might be used for demonstrations, for educational purposes, sales—in a dozen commercial ways.

For exploitation purposes an agreement was entered into by the proprietors with a Mr. Walter J. Rich, a man not connected with Western Electric, but one who had successfully promoted numerous other devices and was experienced in financial matters. However, he had had no special experience in the amusement business. Mr. Rich was given a letter binding Western to negotiate with him regarding a license to use their talking picture patents; and he, in his turn, took the idea to various big motion picture producers without success.

While Rich was doing his peddling act another chain of circumstances was going on that was to bear fruit quicker than anything else.

In the spring of 1925 Major Benjamin Levinson returned to Hollywood after a visit to New York.

He walked up to the main entrance of the big white Warner Brothers' studio on Sunset Boulevard with a sparkle in his eye. Inside he sought out Sam Warner and Murphy.

"Listen," he said, "I'm bringing you hot news. I just saw in our New York Laboratories the most wonderful thing I ever looked at in my life. A moving picture that talks!"

Sam and Murphy began to laugh. "Benny," said Sam with a shake of the head, "haven't you been around the show world long enough now to know that a picture that talks is something to run away from?"

"I know, I know," said Levinson impatiently. "You're thinking about the old ones. 'Camera-phone,' 'Kinetophone,' all those things. But this is different. This is a talking picture that works like radio! Vacuum tubes. Amplifiers. Listen, while I explain it to you"

Picking up a pencil, he described the thing to perhaps the only two men of consequence in the motion picture industry who knew enough about radio to understand him. If ever there was a reward of progress, Sam Warner and Frank Murphy, abreast the era, were reaping it.

"Sam," he said, finishing, "promise me that when you're in New York you'll go down and see a demonstration. I tell you, there's more money in it than there ever was in movies."

But Sam was not thinking of money. Sam was fascinated by the mechanical novelty of it.

In March, 1925, Sam Warner went to New York in connection with the pending deal for the acquisition of Vitagraph, and in April, Levinson followed him.

"Wire Sam," he told Murphy as he was leaving, "to meet me at the train."

Sam Warner was at the train when he got there. And on the day after the Vitagraph deal was closed, Sam Warner was with Levinson in the Bell Laboratories—newly formed to take over the combined experimental and research work of Western Electric and the American Telephone and Telegraph Company. The two friends were looking at, and listening to, *motion pictures that talked and sang*.

From a standpoint of showmanship the demonstration was crude. It was not amusement. It was far from perfect for there were many extraneous sounds in the loud speakers. But the

synchronization was good and the quality of the sound was startlingly realistic.

Sam felt that he was seeing something destined to have a great future. He wanted it. He wanted it badly—just as years before he had wanted the first motion picture projector he had ever seen, at the amusement park near Sandusky.

Now, as then, it was a question of interesting his brother, Harry. Harry, deep in expansion and problems of finance, was a stumbling block. Sam knew what Harry's reaction to mention of a talking picture would be.

He was right. Harry refused to consider it. If there had been one lesson learned by motion picture men during the past twenty years it was that dabbling with talking pictures was the surest possible way to ruin. Harry would not even go and see a demonstration.

Sam and Levinson then took another tack. Ostensibly for social purposes, a meeting was arranged between the Western Electric and Bell Telephone officials and Harry, Albert and Sam Warner. It was understood that the meeting was to have nothing to do with talking pictures. But when all the parties were gotten

together, Levinson and Sam Warner confessed their machination—they had arranged for a demonstration.

And so Harry Warner was introduced to the turning point in his career.

Then, on his way downtown, Harry stopped in at his bankers and told them he was going to the Bell laboratory. One banker said jocularly that they had better send some one with him to see that he didn't buy out Western Electric! They all felt that Harry Warner was a plunger, apt to do anything.

So a young man from the bankers went along. The first number was a stutterer. The man from the bank sat by Harry exclaiming "*Wonderful!*" over and over again. Harry kept jerking the fellow's coat; he was very much impressed, but didn't want the Western people to know it. It was when they showed an orchestra that he got his great inspiration of providing film with musical accompaniment.

As Sam had hoped, Harry's reaction was favorable. For what they saw cast a certain fascination over all who witnessed it that day: it had tremendous promise.

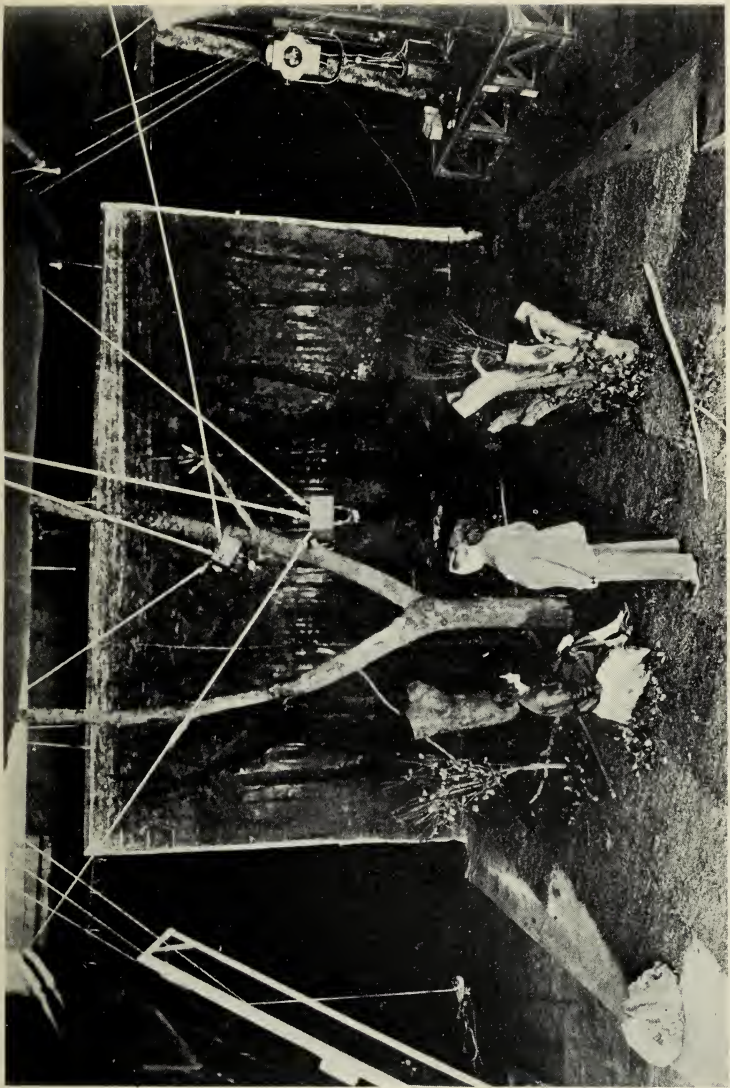
"Yes, something might be done with it," Harry confessed afterwards, when they were back in their own office. "But Sam, I wouldn't be so foolish as to try to make talking pictures. That's what everybody else has done, and lost. No, we'll do better than that: we can use this thing for other purposes. We can use it *for musical accompaniment to our pictures!* We can film and record vaudeville and musical acts, and make up programs for houses that can't afford the real thing or can't get big-time acts. Think of what it would mean to a small independent theatre owner to buy his orchestra with his pictures! Not to have to have an organ! Not a musician in the house! Not an actor—and yet his whole show . . .

"Used that way, I can see it!"

His idea was at once so simple and so radical that the others were lost in admiration.

To understand the significance of this idea one must know something of the difficulties the motion picture exhibitor was going through at the time.

Ten years earlier the average "neighborhood" theatre had gotten its entire show in two cans of film—ten reels, two hours. A single piano player



First Vitaphone set in Vitagraph Studio

had sufficed to furnish music; the owner was called on for no other showmanship than keeping his house neat and selecting the best pictures available.

The growing activity of chain theatres, coupled with the arrival of the cinema at an uninteresting maturity as a dramatic medium, had changed all that. Pictures themselves were in many instances becoming of secondary importance in the shows that were now being put on. Audiences had grown tired of silent pictures. Only the biggest names and the widest advertising made any picture of itself a sure-fire drawing card. In 1924-1925 audiences went to theatres to be entertained by vaudeville, prologues, concert organs, orchestras; and by film programs consisting of news reels, comedies, scenic and other short subjects, with a full length picture to top it off.

Theatres whose presentations were less effulgent than these, suffered from that expensive complaint—serious diminution of the audience.

The cost of operating a theatre had mounted enormously. In many cases it had eaten up the entire profits. Independent owners had been

forced out wholesale—their theatres had been bought up for a song by the “chains,” which, operating what amounted to vaudeville circuits of their own, were able to carry the load.

Harry Warner’s idea of an automatic sound accompaniment would make it possible again to present entertainment without need for more than a theatre and projecting apparatus. Such an attachment, if successful, would cut out all the extraneous overhead that was eating up the business.

Furthermore, since he proposed no attempt to use the new device as a straight dramatic medium, but merely as another form of a show that audiences were already accustomed to, the innovation would be far less a gamble than would an attempt at actual “talking pictures.” The change would take place gradually. A picture show would be just the medley of film and music that it had been—except that everything in it would come inside the cans of film and the packages of records.

The Western Electric people had been impressed by Harry Warner. Warner Brothers was not, to be sure, one of the largest companies, and yet they felt Harry’s personality—his air of destiny.

There was one fact, however, that prevented the two groups from negotiating directly. That was the agreement with Walter J. Rich, who had been promised an exclusive license if and when he desired it.

Harry promptly got together with Rich. Rich had already spent \$36,000 in developing the new device; he agreed that if Warners' would contribute twice this sum, he would go in with them on a share and share alike basis. This arrangement was entered into, with the approval of Western Electric, in the spring of 1925.

Warner was finally able to make an advantageous contract with Western Electric, probably on account of the universal condemnation which Western had found to be the movie world's opinion of any kind of talking picture.

Warner made one mistake; after the agreement between Warner and Rich was entered into and work had actually started developing the thing, Harry told Western his true feelings about the possibilities of their talking picture used for musical accompaniment. He thereby gave Western the first notion that they had something enormously valuable in their hands and made them feel

that perhaps they were tied up with the wrong people. Western certainly got the idea that Warners were too small to realize the full value of the device. At the same time, the larger picture companies with their huge investments, would not contemplate adopting anything that meant turning the picture world upside down.

CHAPTER V

EXPERIMENTS IN FLATBUSH

THE first place the Warners tried out their new and classic experiments was the old Vitagraph studio in Flatbush, Brooklyn. This studio came with the purchase of Vitagraph. It wasn't a very good studio, even for silent films. When it was turned upside down for the new sound apparatus it was the nearest thing to a mad-house in the whole film industry.

The learning of the fundamentals of talking picture making occupied all that fall of 1925, the winter of 1925-1926, and the early spring of 1926. By spring experimental pictures were being made regularly; the mechanics of the thing had arrived at a state of usefulness; and the showmen were learning how to use their new tool. The engineers had begun to look on.

The winter's work had demonstrated that the most serious engineering difficulties of the new

medium were conquerable. Many of them had, indeed, been conquered; though many remained.

Now the Warners'—and Western's—thoughts turned ahead to making practical substantial use and profit out of the experiment. Dabbling with it through the winter had cost many thousands of dollars.

Sam Warner brought friends of his to Flatbush—friends from the theatrical world, singers, dancers. They stood and gaped. They thought they understood; but they didn't. Every day, now, the studio was full of music; an orchestra had been hired.

Making "reels and records" simultaneously was getting to be an old story—though making good ones was still a quest. The showmen were getting used to this novel machinery. The engineers were getting used to the demands of showmanship. But conditions at Flatbush were not conducive to recording sound as it should be recorded. The drawbacks, the unfitness of the studio, the presence of uncontrollable noises, were too great.

Of all the experimental records made there, only two survived. Venerable Dr. Watson, co-worker

with Alexander Graham Bell in the invention of the telephone, was induced by the Western Electric engineers to come to the studio and deliver a short address through the new medium. This "masterpiece" was afterwards released to theatres.

One "short," called the Volga Boatmen, made by Sam Warner, also later reached the public. The memory of that "short" brings a smile to those pioneers who saw it "taken." The "Boatmen" were a Russian double quartet—eight men—engaged for the occasion. Their song was the "Volga Boat Song." It had been decided to do the number scenically. A "set" had been made; the foreground was the river's bank; the background the river and the opposite shore. According to the "action" the boatmen were to appear on the bank, dragging their boat by a heavy rope. As they moved slowly across the set they would sing their song. When they moved off their boat would appear as if being towed.

The carpenters—or "grips," as the theatrical world calls them—had built a fine boat for the occasion. But they only built as much of it as would show in the picture. It consisted of a "port bow"; a mere quarter of a hull. It was

58 THE FILM FINDS ITS TONGUE

made of canvas and it weighed about forty pounds.

The property man had provided a huge hawser that was to drag this "boat" up the "river" against the current. When the boat and hawser were connected up and the hawser was led to the Russians' shoulders and the Russians pretended to heave, the effect was about as convincing as a Pomeranian labeled "Lion."

There was no use connecting weights to that "boat" or having a gang hold it back. It simply wouldn't stand yanking. But it so happened that there was with the Russians a compatriot who was a giant of a man. He stood some six feet four, with or without shoes; and his beam was astonishing. He was discovered leaning in a corner of the studio, regarding the proceedings with a cynical eye.

"Hey!"

He spoke, apparently, no English, but he came over.

Some one led the hawser clear across the room and took a turn with it around a girder; some one indicated to the giant that he was to hold the end, and to slack away unwillingly against the

pull of the eight. With a light in his eye he got a good grip, braced his feet against the wall and prepared to resist.

Those who saw that early "short" in the theatre, saw eight Russians pulling for dear life to get their "boat" up the river. But the boat was pushed into view by a grinning "grip" who was doing everything he could to keep from guffawing and spoiling the "take." The eight Russians were having a tug of war with their friend on the other side of the room. The effect was a "wow."

All through the winter, as they had been watching the progress of events in Flatbush the business men of the two interested companies had been trying to shape some plan of action for the future. Everything so far had been done on "agreements"; no contracts had been drawn up, no licenses issued. The patents involved (property of the Western Electric Company, except some that had been developed by Warners' during the winter) were being used on the strength of Mr. Rich's understandings with Western and with his new partners, the Warner Brothers.

Now, as the moment arrived when the talking

picture might be brought to the public, it was necessary to get these affairs of business into definite form. Public inauguration would mean the spending of much money and the doing of much work; some definite agency would have to be provided to handle all this.

Harry Warner decided that his organization, Warner Brothers Pictures, Inc., should not be the medium through which these things were done. Warner Brothers Pictures, Inc., was to continue as before, making silent motion pictures for distribution through its exchanges to silent motion picture houses all over the country. It would be a mistake, he thought, to disturb them—yet.

Nor was Western in a position to carry on the work. For it was work far more closely allied to the motion picture industry than to that of the Telephone Company. The ideal means of handling it was through a third company. Both sides agreed on that. And by virtue of Mr. Rich's position and his agreement with Warners', this company could do the work. Western was to grant it, under certain conditions, an exclusive license to use the Western Electric talking picture devices.

The name agreed upon for this company was THE VITAPHONE CORPORATION. And it was decided that from then on the Western Electric talking picture would be known as the VITAPHONE.

The Vitaphone Corporation was formed early in April, 1926. Its license with Western Electric was consummated on April 20, 1926.

The whole task, now, was to get Vitaphone before the public. Rich wanted to have "demonstrations" for exhibitions. Harry Warner, being a showman, knew that the way to interest an exhibitor was not to show him a machine or give him a show, it was to show him how to make money: *show him something the public wanted*.

Vitaphone would have to go over with a bang. For the first showing it must have the biggest names, the best picture, the greatest exploitation of anything theatrical during its current year. It must be done so dramatically that it couldn't be overlooked.

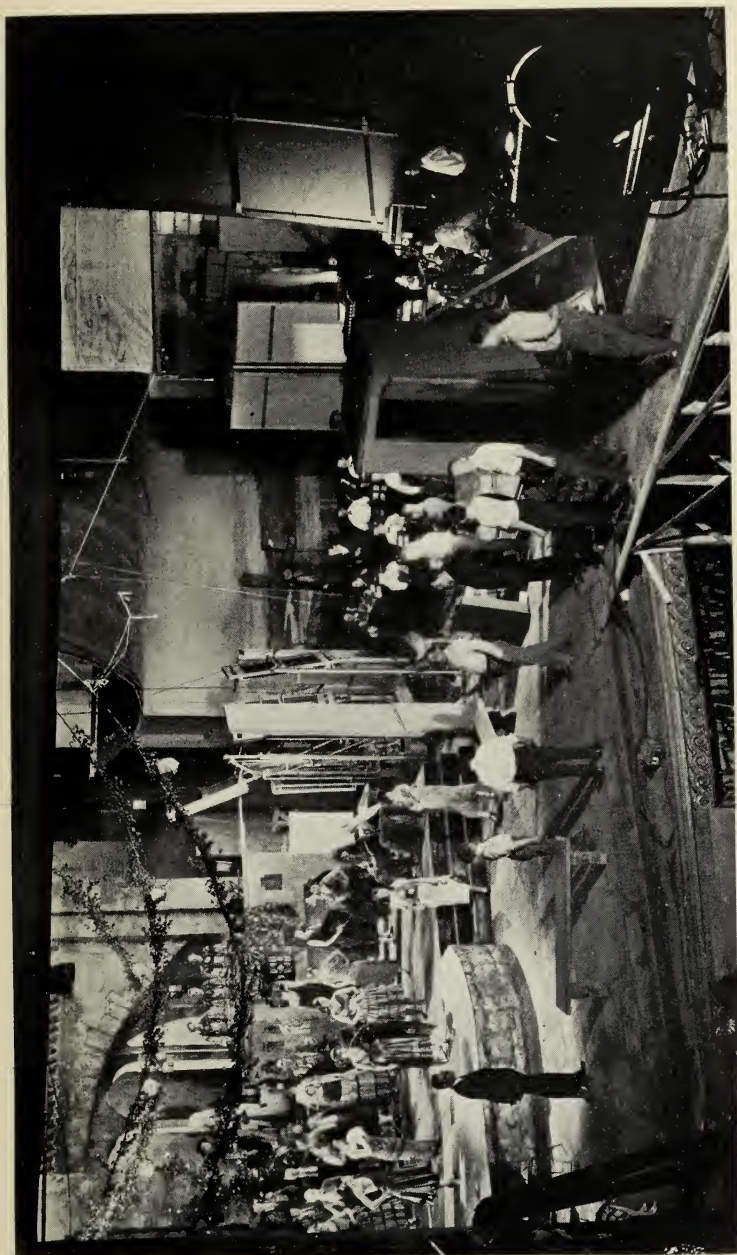
Out in Hollywood the Warners were just finishing the first of several special silent pictures, designed to be the Warner movie high spots of the year. John Barrymore, who had made *The Sea Beast* a year before, was making *Don Juan*.

Another had already been announced; exhibitors all over the country were waiting for it; it was to cost \$500,000 to make. And it was bound to bring in tremendous returns from a public used to silent pictures such as it was.

Boldly the Warners decided to gamble this picture and not release this picture to the trade. They would reserve it for the first Vitaphone showing—thereby relinquishing all hope of huge return. For there was only one theatre in the country equipped with Vitaphone reproducing apparatus, their own on Broadway at 52nd Street, in New York City. Furthermore, Harry went out to the coast and told them to make Don Juan even better. They put an additional \$200,000 into it, not counting the *sound* parts they would add.

Not until they had had a showing and gotten a public reaction to the innovation of a sound picture could they hope to sell reproducing apparatus to other theatres. Not until they had theatres equipped with reproducing apparatus would they be able to release Vitaphone.

The innovation would be a tremendous expense. Harry knew it was a tremendous gamble. But there was no other way, he felt.



Making Talkies in Manhattan Opera House

He had courage enough to make the gamble a bold stroke. He decided to engage the finest orchestra available: the New York Philharmonic Orchestra, a superb company of 107 instruments, one of the best in the world. This orchestra would "score" (make a "synchronized musical" accompaniment for) this picture.

To supplement the feature they decided to go to the source of the country's greatest musical artists—the Metropolitan Opera House in New York—and engage the greatest singers in the country.

These records—sound and song—would have to be perfect. Flatbush would not do. They had to have another studio, and have one quickly. There was no time to build one. And what in the world was available as a talking picture studio?

Down on 34th Street in New York, stood the old Manhattan Opera House, built by the impresario Oscar Hammerstein in the days when he was making a bold challenge for the operatic supremacy long held by the Metropolitan. Hammerstein had sunk a fortune in the Manhattan. And during the years of his competition New

York knew music such as had not been heard before.

The Manhattan's location was not good. Since Hammerstein's day it had housed varied theatrical entertainment: Sothern and Marlowe's Shakespeare, minor opera companies, ballets. It had been used for wrestling matches. It was a white elephant of a theatre. And yet its acoustics were good, as theatre acoustics went; it was large; it had thick old walls that would form a pretty fair insulation of sorts against outside noises.

It was no talking picture studio, but it was infinitely better than Flatbush, and it was the only place available. The Vitaphone Corporation leased it for a year.

The engineers who had since the beginning carried on the Western Electric end of the work in Flatbush had been mostly employees of Vitaphone. They now found themselves up against an altogether new set of problems in converting this old opera house into a place for making talking pictures.

They had to install wiring, recording apparatus, a "monitor" room, a workshop, generators for the three phase alternating current that operated

the cameras and recorders, and the switchboards. Electricians sent to Vitaphone from Warners' in Hollywood put in arc lights for lighting the "sets." Carpenters had to deck over the seats in the orchestra. The place became a hive of activity as they all got to work.

There was a row of dressing rooms that had once been used by the immortal Tetrizzini, by John McCormack (when he was young and was the operatic rival of young Caruso), by Renaud, Mary Garden—the list of great names gathered together by Hammerstein.

The recording apparatus went into John McCormack's dressing room. The door that had once borne Tetrizzini's "star" opened onto a workshop. Mary Garden was replaced by a group of generators. The men who put them in thought Mary Garden was a perfume.

And for a monitor room, where Talkie recording was electrically directed, no place inside the auditorium itself could be found. But up on the sixth floor there was a hall used at night by a Masonic order.

The monitoring apparatus—the "mixer" as it was called—was put in those lodge rooms, then,

but it had to be so arranged that it could be taken out every night when the Masons used the quarters. With the monitor man six floors away during Talkie recording, and no communication between him and the stage, he had to come climbing all that way down to talk to the director after rehearsals; to tell him how the voices were coming through, etc.! Those six flights down and back became the bane of the technicians.

The chief difficulty lay with technicalities. Every day's work was a day of pioneering. No one had ever done precisely this sort of thing before. It was easy to make pictures, easy to make records; but another matter to make them together. Conditions that were ideal for the one were so often not at all ideal for the other.

It might have been different if the public—and the picture men—were not so used to a difficult and intricate technique of picture making. You could not, for example, continue any one "shot" for a great length of time. It got monotonous. That was the reason the silent picture had become a sequence of dozens of little bits, why it shifted from long shots to close-ups, why

any scene was shown from four or five different angles. For the same reason, in this making of talking pictures, you could not simply have one camera and one microphone and "take" eleven minutes of action and sound. It would be monotonous. The audience would get restless.

But at that stage of Talkies it was necessary to make the record in one unbroken recording—the entire ten or eleven minutes of it had to be made at once. The only chance then of having different camera-shots was to have two or three or even more cameras make the "take," some of them near the action getting close-ups, some distant, making long shots. Since the limitations of those first installations required a camera to remain in one position during the entire "take" and inhibited it from "swinging" to follow motion, there must be a different camera focused on every spot where action was to take place.

These cameras must all be started together and must all run in synchronism (i.e., in step) with the record. Then their different film must be spliced together to provide the necessary breaks in picturization—*but without losing synchronism.*

That was what was so hard—maintaining the synchronism. And it must be maintained *exactly*, as we shall show later in our story.

There are sixteen pictures to each foot of film. Each one of these pictures is known as a “frame,” and passes before the lens in less than a sixteenth of a second. If film was *one frame out of synchronism*, the listener was conscious that “something was wrong”—it was hard to say what except that it didn’t “sound just right.” If it was two frames out, the lack of synchronism was plainly evident. If it was three or four frames out, the lip movement and the sound didn’t tie together at all—it might as well be some one else speaking!

Prodigious was the difficulty in splicing the film from these different cameras together. Unless it was matched to the exact frame, synchronism was lost when the new shot was cut in.

Bert Frank, the cutter, spent sleepless hours concentrating on this problem. The company was working on the recording of the New York Philharmonic orchestra, making the score of *Don Juan* and also playing the overture to *Tannhäuser*. Frank was determined that that overture would

be more than a simple long-shot of the orchestra. He succeeded. He learned to synchronize each different camera's film with the record, to match the "frames" of the different prints, to make a reel that was a composite of all of them and yet that was in synchronism throughout with the record!

That was just one of the many vital minor triumphs.

Arranging the musical score so that it would be in synchronism with the picture was a problem in itself. Pictures had, of course, had musical scores written for them for many years; the gathering of the music was nothing new. But these scores that went out to theatre orchestras were not perfectly timed. They simply contained the music that was to be played, and a running "cue sheet" interpolated in with that printed music. Each bit of music was designed to be played by the local orchestra while certain action was occurring on the screen. The usual break between two pieces of music occurred during a sub-title. It was easy for the orchestra director to have his men continue playing until the moment to change came along (as determined by the picture in front

of him on the screen) and then to direct them to shift to the next piece.

Now, however, there was no orchestra leader in the theatre. The Vitaphone accompaniment must do its own shifting.

Dr. William Axt and Mr. David Mendoza, noted musicians who had been engaged to write the score for *Don Juan*, spent hours watching the picture. They timed with stop watches, reel by reel. They composed themes, dipped into the works of classical composers for incidental music, and made up a score designed to synchronize *exactly*—if played at the proper speed—with the film.

Dr. Henry Hadley had been secured to direct the Philharmonic orchestra. He, too, studied the picture and the score, and rehearsed it with his men. To play it all through took more than an hour. Yet every bit of it had to be followed with a stop watch, noting how some parts would have to be speeded up, some played more slowly, how a few bars would have to be cut from the music here, a few added there.

When the accompaniment had been timed perfectly, recording began.

On Eighth Avenue, near the Opera House, the city of New York was excavating for a new subway. There was cutting and blasting into the solid rock on which New York is built. There were times when, near the finish of a perfect record, a blast would come along and jar the recording stylus, making it jump clear out of its sound track. The record would be spoiled! The musicians would then have to go back and do it over again.

The orchestra was tense. Every man felt that he dare not make a mistake. Sometimes the tension was so great that many mistakes were made, so many that the "take" was spoiled.

Each time a "take" was made all the cameras had to be "loaded" and "lined up," the "starting frame" marked. New wax records (just like a phonograph) had to be put on, their starting point indicated. Sometimes they would make two, three, four, five, six . . . ten attempts before getting a perfect record.

The numbers on that first program are history now. It was opened with an address by Will H. Hays, "czar" of motion pictures, who welcomed the new medium to the world of the cinema and

acknowledged the entertainment industry's debt to Warner Brothers, the Vitaphone Corporation, Western Electric, Mr. Rich and the Bell Telephone Laboratories.

The New York Philharmonic Orchestra, under the direction of Henry Hadley, then played the overture to *Tannhäuser*. Martinelli and Marion Talley sang. Mischa Elman and Zimbalist, noted violinists, played.

These were all splendid numbers. All of them involved "first" use of one or another feature of talking pictures; Anna Case, with the Cansinos, a famous dancing team, and the Metropolitan Opera Company chorus, was interesting from a technical point of view as well as from a musical standpoint. It was the first use of Vitaphone in recording the voices and actions of a number of people on a stage with a fairly elaborate setting. It involved the use of scenery, of lighting on a large scale, and many technical points in the use of cameras, microphones, etc.

The synchronization was perfect. It was not like the Kinetophone demonstration in 1912, when on several of the numbers the record and film had been out of step and the audience had tittered



John Barrymore in Don Juan

at a wide gap between lip movement and the sound that accompanied. No, this was perfection.

The first half of the program was sensational; the second half was reassuring. There was the screen story of the cinema, and coming from the Vitaphone was an accompaniment that had no suggestion of the mechanical, though it was all *automatic*. The orchestra might have been present.

Indeed, it was a little of a shock, when the audience had finally seen *Don Juan's* last escapade, to realize what that accompaniment had been. Then there was applause again.

That night the Warner Brothers were happy men; and next morning when they read the reviews in the New York papers, they were even happier.

For though many of the critics had picked out individual minor points to criticize—all unconscious of the terrific difficulties that had brought about these points—the tone of New York's cynical army of play-reviewers was not only commendatory but enthusiastic.

Vitaphone had met the full competition of the amusement world—successfully.

CHAPTER VI

THE FIGHT GOES ON

IF it was the first half of the historic program which the reviewers concentrated on as an innovation, it was the second half that interested those to whom this first program had really been dedicated: the theatre owners of the country. Scattered through that first night audience had been many of these; some of them had come from long distances.

They were at the Vitaphone offices the next morning, early. They wanted to know many things. What would a theatre installation for Talkies cost? How could they get one? How soon? What arrangements had been made for other programs? Naturally, there would be no use putting in Vitaphone reproducers unless they could be guaranteed a steady supply of film and records for it.

The last of these questions could be answered.

Sam Warner and the Manhattan Opera House workers were already at work preparing a second program. After that there would be a third; and a fourth, a fifth, an unbroken succession of them.

The second was to be lighter in vein, built around the Sidney Chaplin picture, *The Better 'Ole*. Its short subjects would be variety and stage stars—Elsie Janis, George Jessel, Al Jolson, Eugene and Willie Howard, Reinald Werrenrath and Bruce Bairnsfather.

The third was to be Barrymore again; this time in *When a Man Loves*, a picture with a strong supporting cast, including Dolores Costello, and based on the story of *Manon Lescaut*. With it would be shown a notable bill including Schumann-Heink, Gigli, De Luca, Alda and Mary Lewis.

But the matter of equipping theatres was on no such definite scale. Vitaphone Corporation, inquiring of Western as to when deliveries could be expected, how much the installations would cost, etc., was unable to get definite information. However, they had been told before the contract was signed that the cost would be reasonable; around \$5,000.

Many theatre owners signed contracts for in-

stallations without even this knowledge. Within two or three months there was a handful of other theatres besides the New York Warner, at which Vitaphone presentations could be seen. Warner Brothers, too, equipped the seven or eight theatres which they owned in various cities (used ordinarily for the purpose of launching the more important films with prominent showings) and began showing Vitaphone productions.

The Better 'Ole and *When a Man Loves* were scored as rapidly as possible, and their accompanying "shorts" were turned out as fast as they could be made. Owning no more theatres in New York, the Warners, when these programs were ready, leased two. By autumn three Vitaphonized performances were on "Broadway," drawing crowds every night.

By herculean efforts 100 theatres were equipped for Talkies in about six months. However, in November, 1926, Warners learned with some shock that equipments would cost from \$16,000 to \$25,000, instead of the \$5,000 first mentioned. This price was so large that it would be impossible to collect from theatres in one payment. Whereupon Vitaphone became a financing company, pay-

ing Western cash for these equipments, and selling them to theatres on deferred payments covering one to two years. Harry Warner's gray hairs increased.

The investment grew to \$2,500,000! It was all shouldered by the Warners. Then, faced on the one hand by the imperative need for equipping several hundred more theatres if releases were to be great enough to bring in profits, and on the other hand by the impossible financial burden that financing such equipments would mean, the Vitaphone Corporation found itself in a very bad hole. In addition to the \$4,000,000 bond issue previously mentioned, Harry Warner had negotiated a \$1,000,000 bank loan when Vitaphone was formed. But this cash was all used up in underwriting theatre equipment so that Talkie productions could be shown. Now he sold 100,000 shares of his Warner Brothers' stock—secretly—to get an additional \$4,000,000 to carry on with and loaned all the proceeds to his company without security. Had he been caught in this daring move he might have lost all that he had gained.

Meanwhile William Fox utilized the success of the first Vitaphone showings to break into print

with large claims for a talking picture, which he claimed to have developed in association with a Mr. Case, but did not put out shows. But Fox-Case had no amplifying device. It was able to make talking pictures after a fashion, but not to project them in theatres without using patents belonging to Western. It had to have vacuum tube amplifiers, exponential horns, etc. The outcome of this situation was that it approached Western and learned that Vitaphone had an exclusive license; which, however, required that Vitaphone sub-license others in the industry as they applied, sharing the royalty fees with Western. Such a sub-license was granted to the Fox-Case Corporation in December, 1926.

During this period, the Western Electric apparently concluded that Warners had been the wrong people to tie up to; that they (Western) should, instead, have associated themselves with the largest people in the movie industry. Reasons for this belief were several. Though Western had initially thought of Vitaphone as a direct medium of dramatic expression, they had since seized upon Harry Warner's idea of using it as an adjunct to the movie. This valuable idea remodeled their

whole conception of sound film; and it made them anxious to interest the biggest producers in the business, hoping that they would thereby get far more royalties out of their invention and patents.

In December, 1926, the leading silent film people held a Council of War. They had watched the Vitaphone opening, confidently expectant that like all other talking movies, this would fail. Now that it had not, they saw it as a threat to the conventional movie and movie show. Talkies, they felt, was something that if it came to be demanded by the public would cost them a dozen fortunes in modifying their present equipment and technique. It would rock the movie world. It would, as they foresaw perfectly, do exactly what it has done. And they were afraid.

The so-called Big Five decided to try to buck it. In the first place, they planned to try to undo the Warners. Secondly, if they were forced to adopt talking pictures, they decided that they were entirely unwilling to take sub-licenses from Warners. They could not bear to pay Warner, a competing film company, royalties for the use of the Talkies; they felt that to acknowledge use of Warner or Vitaphone devices would cause them

to suffer loss of prestige. They also engaged an engineer who spent about \$500,000 in the next year and a half investigating and trying to perfect other devices. There was no doubt about their concern.

As a final step in this defensive move, they mutually agreed, so that they would have a bartering point, that none of them would adopt talking pictures until they all did; and that "in the interests of standardization in the industry," they would, when they did adopt the thing, all use the same device.

There was at this time talk of other Talkie mechanisms "soon to be available," numerous promoters having been drawn into the game by the Warner success. The Big Five believed that this threat of uniform equipment in the industry would be a strong bulwark against the inroads of Vitaphone on their precious properties. If they decided to use another set of inventions than those used by Warner they would be safe enough. With their huge combined outfit they could undoubtedly cause their type to be the standard equipment used by the bulk of the theatres in the country. They hoped further it would be one that Warner

would not be able to use, so that the majority of theatres would be closed to the Warner product. Furthermore, the threat of using some other apparatus than Western's was a club to hold over Western's head. However, Western was so eager to become associated with these others it certainly didn't need to be threatened.

All these elaborate plans failed for just one reason. The Western Electric apparatus was really the best of all the apparatus on the market. If the others had been able to find one even two-thirds as good they would have signed up and played freeze-out against the Warners in a minute. But the more they investigated the situation the better they saw that they must have the Western equipment.

The greatest reason for this was Warner's most successful and showmanlike use of the Western Electric apparatus. For such competent work the Warners must be given the lion's share of the credit. Almost every improvement in construction of the Western Electric's Talkie apparatus, and certainly every one in its use, made after Warners took over the job of working with it, was due to Warners' showmen and technicians.

For instance, over at the Manhattan their technical progress had fast outstripped their "tools"—the studio and its equipment. When they first moved over there, it seemed a wonderful advance over Flatbush; it seemed wonderful to work without the essential drawbacks that had made that place impossible. But now that they had exhausted the Manhattan's possibilities, they were reaching onward to a studio equipped for nothing but talking pictures, a studio in a building designed especially for their needs.

With the first three big programs out of the way, the Warners concentrated on a program of making four "shorts" every week, and of "scoring" with automatic music every Warner picture that was made. Scoring was comparatively easy; it was now an old story and merely a matter of so much preliminary work, so many rehearsals, and the actual recording. As a rule, the recording needed comparatively few "takes"; scoring was the simplest thing they did.

It was the actual *talking* picture upon which attention was concentrated. The Talkie presented constant obstacles. Yet these were overcome in spite of apparently insuperable difficul-

ties. The trouble was that as soon as they were past, a new set appeared to take their places.

Audience interest remained greatest in the Talkie part of the program. They took the "scored" picture with its automatic orchestra as a matter of course. They were critical of the Talkie. If they liked it, they liked it enormously; if they didn't they panned it hard. There was distinct audience demand for good Talkies.

In part the verdict on a talking short depended on the audience's personal reaction to the artist. In part it depended on the recording—on how well and how flexibly the medium was used. But subject was most important.

One item that early came to be discerned was that audience reaction was often sectional. Talkie shows had to be booked more like vaudeville than like pictures (which had a more universal appeal). Some cities liked the opera numbers; others wouldn't stand for them. Western and southern states in particular objected to highbrow stuff. Those first numbers that had been necessary to launch the thing in New York did not go so well in the back country.

Vincent Lopez's orchestra was received very

warmly. This success led to the Vitaphoning of a number of prominent orchestras. Such numbers were excellent but short lived. They depended in part on the use of the very latest in popular music. As a rule they lost their appeal when the music had lost its popularity.

Vaudeville acts with humorous "gags" went over well; but it was sometimes difficult to pick them. Acts that were knockouts on the regular circuits went flat on Vitaphone—for a funny reason. The actors couldn't stand up under the revealing intimacy of the Vitaphone recording. They had to be genuine. Basic artificiality was punctured. If an artist "plugged" hard, he got the audience's appreciation; if he was a shyster fundamentally, he failed to go over. Eyes of the audience seemed to have become a lot keener.

The basic thing that was discovered was that, more than almost anything else in the amusement world, Vitaphone numbers had to be good entertainment. Truly good entertainment is one of the hardest things in the world to find; and one of the hardest things in the world to transmit.

The most reassuring factor of it all was that, if the entertainment was really good, it had per-

haps a greater fascination for the audience than any other that had ever been presented. The Warners saw more clearly than ever that if they could only master the use of this thing fully, there was success ahead of them which could not be measured in any ordinary terms. What they felt was what has since happened. The work they were doing was revolutionizing the entire amusement world.

But the winter was awfully difficult. The financial difficulties at the top penetrated all through the organization. Happily for the Warners, their organization manifested loyalty to a degree hitherto unknown in the movie world. It hung together like grim death to see the fight through.

The same loyalty had pulled the Warners through before. In the old days of "quickies" when the Warners were often completely out of money, many employees voluntarily went on half salary, or without salary at all, for long periods of time. It rarely occurred to any of them to quit Warner. They stuck. Invariably, as soon as money came in, such people were the first to be paid. The organization still has an extraordinary

loyalty. The fundamental reason for it seems to be a certain affection for the Warners themselves—a lot of this was concentrated in Sam, who had an enormous number of friends not only in the theatrical world but among men who worked for him. Harry's leadership also played a huge part. They liked him; but more, he inspired them.

That winter was also a terribly anxious one for Harry Warner. Faced by the needs of enormous amounts of cash for the financing of equipping theatres, Harry most reluctantly (and secretly) sold again many shares of Warner Brothers' stock. Again he drained his entire personal fortune, and strained the company's bank credit to the utmost.

The maddening part of it was that the few theatres which were equipped for Talkies were making a great deal of money, much more than they would have made with silent pictures. Warners knew that if they could only get enough theatres equipped they could make a fortune without a penny more expenditure for the shows themselves. *They had the goods, but they could not get them to the public.*

Another depressing factor was constant ruction

with those who owned the patents. Western from the beginning believed that Warners were not the people to handle the thing properly. Their chief representative, who was no showman, got a feeling at the very start that the expenditure for those initial programs was unjustified; that the thing should have been launched more modestly. It is now perfectly safe to say that this viewpoint was fatally in error. Had Vitaphone been launched quietly it would no doubt have died a quiet death.

Western curiously felt that the first programs were not true entertainment. Most of the top men in Western apparently did not like movies anyway. The thing objected to most was the Vitaphone shorts; objected to them when they were operatic because they were undramatic. Then, when because the audiences manifestly liked the vaudeville shorts better than they did the operatic ones, and Sam and the Manhattan crew began making vaudeville acts and dance orchestras in preference to the heavier stuff, they objected to these as trash.

That winter, which started off most promisingly, ended with the Warners fighting desperately for their very lives.

CHAPTER VII

A SOLDIER FALLS

THE *Jazz Singer*, starring Al Jolson, was finished as a Talkie at the Warners' Hollywood studio in the summer of 1927. The last "take" had been made on August 7th. The film was developed that night for the "rushes"; and after those were seen by Alan Crosland, who had directed the picture, by the cutter, by Sam and Jack Warner . . . and talked over . . . they were locked in the big film vaults to await the return of the records from the Victor Talking Machine Company's plant at Oakland, California. The records were made up there; the "waxes," as the original records were called, having been shipped in special boxes so constructed as to allow nothing to touch or mar their perfect surface. These waxes were then, at the Victor plant, covered with graphite and electroplated with copper. The copper conformed to each delicate groove and made a "master" die from which the commercial records were pressed.



Irving Berlin and Al Jolson

A week later the records were back; and the difficult task of cutting, scoring and duping the picture began, a task of great delicacy. It is easier now, for it has been done many times, and those who make talking pictures have grown skillful at it. Then, it was pioneering, experiment, every step of the way.

It should be remembered that the *Jazz Singer* was as much of an innovation as Don Juan. It was the first true Talkie. It had been projected at a time when it seemed mathematically certain that it could not return its cost, due to the small number of places where it could be played. Yet as a silent picture it could not succeed. Harry Warner knew this when he hired Al Jolson. He calculated that success in "wired" houses would force the silent houses to install reproducing apparatus. He was right. For at least 100 houses that failed with it as a silent picture played it again as a Talkie and cleaned up.

The middle of September, and the job was done, the records ready. Special messengers carried it all across the country to New York as though it were most precious jewels.

This now-famous Talkie was to open at the

Warner Theatre on October 6, 1927. The theatre was being renovated especially for the great occasion. Huge electric signs were being built to cover the big marquee. Posters flared on billboards all over the city: "COMING—AL JOLSON IN THE JAZZ SINGER" . . .

It was all pretty good. It was so good that there was a feeling on the Warner lot and in the Warner offices, that it might be the turning point of this long heart-breaking fight. The feeling of success was in it. On the tryouts those songs of Jolson's had gone over with a ring that ought to bring down the house. But there had been too many setbacks to be sure.

The four Warner brothers had that feeling of hope; and yet they bore the undercurrent of anxiety that is always present when one's work is to be submitted to the public. It meant so much to them: it meant the future. They had been skating on thin ice for so long, following their dream. The ice seemed thinner than ever now, even though there promised to be solid footing just ahead.

Days went on, drawing closer and closer to that opening night. It didn't seem that anything

could happen . . . they were so carefree. But something did happen.

Sam Warner was tired. He had been in the thick of battle ever since the day he saw that first Talkie demonstration. He had been putting all his force, all his energy, all his vitality into it; carrying it on his shoulders, lending strength, cheer . . . continually fighting.

The last week in September he was ill, just one day. It didn't seem much; just a cold. He'd been just about to start for New York with Jack and Albert to see the premiere. Now he wasn't well enough to go. Jack went alone, under protest; Albert stayed. Sam continued work, literally dying on his feet.

Two days later Sam went to the hospital. A sinus was infected. Then the poison swept down into his system and all through it. The surgeons operated. Jack, in New York, turned and raced for the coast. Harry dropped everything. The premiere was forgotten in this moment of threat to one of those four warriors. He sat, an anxious man, waiting for telegrams in a train that seemed to crawl when it was going seventy miles an hour.

For twenty-four hours the news was reassuring. Then there was a relapse. Sam, who had been in full vigor a week before, a giant just turned forty, was fighting for his life in the California Lutheran Hospital, Los Angeles. It was pneumonia with complications. They were operating again. They were feeding him oxygen. . . .

In three frantic days Harry Warner crossed the country, hoping against hope. Albert was in Los Angeles, hurrying to the hospital, when Harry got the telegram he had been dreading: Sam was dying—he was not going to get well.

Harry was in Phoenix, Arizona. Time and miles seemed insurmountable barriers. He was trying to get a plane to take him the rest of the way. He failed. He chartered a special train. When he reached Los Angeles at six o'clock on the morning of October 5, 1927, his brother had been dead for three hours.

But the public must be amused, regardless of life or death. The Pagliacci theme is not all confined to the actor. And so, on the 6th of October, the next night after Sam's death, the *Jazz Singer* had its premiere: without Sam—without any of the Warner brothers. None of them could sum-

mon up enough feeling to care much about the *Jazz Singer* at that moment.

On Broadway the new Warner signs came to life with the dusk. Striking posters of Jolson, just eyes, mouth, collar, and white gloves in a dead black sheet, but Jolson to the last detail, stood in the theatre's lobby. Crowds pushed by, swarmed, shoved. Taxis drew up carrying the cream of the profession, possessors of choice tickets . . . taxis carrying Broadway to something new. A line swayed about the box office. But there were no more seats.

It was a New York audience, come to see a New Yorker, to hear him sing for them, to judge his song—*which came out of a can!* They had a good time that night. They were wild about the singing. They seemed almost wilder about one other thing: that little impromptu speech of Jolson's, to his mother. "*Come on, Ma. Listen to this . . .*"

When Jolson began to speak, the audience reacted as though to wine. It was an epochal moment. They couldn't get over it—he had spoken . . . to *them*, from that screen! It was a little strange, too; for there had been much

Vitaphone speech before, in many of the shorts. But this, coming from a picture that the crowd was interested in, a picture that was swaying their emotions, that they were for the moment *living* with the players, struck deeply home.

Telegrams started west now that were business: "*Jazz Singer a hit. Went over big. Jolson's talking hit the high spot. Work dialogue into them. Give us more like Jazz Singer, with more talk.*"

The public knew what it wanted; the theatre men at last knew what the public wanted. The public wanted talking pictures, now. They wanted the characters to start talking and go on talking.

The dam was broken: Dynamite the crevice and let the flood through! It was victory! It meant dollars; it meant fortune, fame, success. . . . But at the moment it didn't mean very much to Harry Warner, and Albert Warner, and Jack Warner. Where would be the victory, how could there be anything in the reward . . . without Sam.

And yet they could not stop now. A great fight still lay ahead. This was only the merest crack. There was the forcing of the issue concerning the



Sam Warner and his prize dog "Props"

equipping of the theatres. After all these months, only a hundred of them were yet equipped to take the Talkie product. There was the making of pictures that must now take advantage of the "break." There was the surpassing of other producers who might now see the merits of Talkies and try to capitalize on Warners' pioneer venture.

The brothers did not want to fight for themselves any more. For Sam's sake, they could not lie down. They must carry on. They must finish the task he had started, must between them do his share. They must see it through to the end, and that end must be a triumphant one.

Harry and Albert were sober and determined when they started back for New York after Sam was buried. Jack, in the studio, squared himself. He was alone, now, in the west. There were those telegrams from the east. He must give them "more talk."

The public knew at last who the Warners were.

PART II

THE MACHINE

HOW SCIENCE BROUGHT ABOUT THE MIRACLE OF THE
TALKING FILM

CHAPTER VIII

ROMANCE OF THE PHYSICIST

THE true story of the Talkies goes back to the dawn of history. But their womb was the old-time theatre.

This theatre of our fathers took many forms. There was the "legitimate" stage, which offered drama, melodrama, farce, comedy and extravaganza. There were also certain lighter theatrical entertainments, such as burlesque, "variety" or vaudeville, minstrel shows, touring monologists, circuses, "Medicine" Shows. All of these forms shared one feature in common. They were presented by living people actually within the sight and hearing of the audience.

The mechanical age had a profound effect upon this theatre as it brought to it new stage devices; often marvels of ingenuity, such as the ones used to present horse races, shipwrecks and Eliza Crossing the Ice in full view of the audience.

There was a new technique of stage lighting and a new field of prosperous audiences. Mechanics now crept up behind the theatre's back and dealt it a most unexpected thump, the effects of which are still reverberating through the halls of Thespis.

In October, 1899, Mr. Thomas Alva Edison and his assistants perfected a little machine called the Kinetoscope. It was a peep show whose marvel was that it offered tiny "animated photographs," pictures that seemed to live and move. Showing was to the one-man audience which peered recurrently through its opening.

This queer device contained the first feet of that "film" that has since stretched out in an endless ribbon so long that people consider measuring it in light-years instead of miles!

For reasons to be divulged later, Mr. Edison did not think a great deal of his Kinetoscope. It was almost five years before the thing was commercialized. On April 14, 1894, however, a "Kinetoscope Parlor" was opened at 1155 Broadway, New York City, and became the forerunner of the "Penny Arcade."

For a brief time people were willing to pay money to look into the Kinetoscope merely be-

cause it seemed a Modern Miracle to see a photograph move. But there came a time, all too soon, when the Miracle moment was passed and the man in the street stayed in the street instead of coming in with his pennies.

Mr. Edison's business managers wanted those pennies.

Fortunately, the Kinetoscope had possibilities greater than its novelty. Because it recorded the actions of a human being, it could be used as a medium for the reproduction of dramatic action in pantomime. Its owners began to make that use of it.

They engaged well-known players—chiefly of the more alluring sex—and “Kinetographed” short bits of the action that had led to their renown.

Peep show audiences were for the most part masculine and not of the highest order. Sex appeal had an early cinematic introduction as “spice” was found to be the “sure fire hit” of the peep shows. Comedy ran a close second.

But Mr. Edison, being an inventor and an engineer, lacked theatrical prescience. He failed to realize the old theatrical axiom that the most

money comes from the largest audiences; and so persisted in a belief that moving pictures seen through peep-shows by one person at a time would be more profitable than if they were projected against a screen.

Hence, though he made a few attempts at projection, it remained for others to discover the additions to his mechanism that made possible the modern motion picture.

By 1900 projected motion pictures were feasible. But their novelty, like that of the Kinetoscope, soon wore off.

Then commenced a long struggle to utilize them as a means of dramatic expression sufficient to please and capture many successive audiences—and their dollars.

The Motion Picture was the first *mechanical* medium of dramatic expression.

Its greatest advances over its "legitimate" cousin were realism and flexibility. Difficulties of scene-shifting had limited the stage to three or four acts and not more than a dozen scenes. The movies, however, could use a thousand scenes if necessary, and shift them every thirty seconds without an intermission. The stage had replaced



Mr. Watson who cooperated with Graham Bell on the invention of the telephone and one of the first subjects ever taken on Vitaphone

the Shakespearean placard with a canvas ship that was palpably false; the movies took the audience out to sea and showed them real water. The stage, with its physical limitation of size, had allowed only a limited number of players. The largest army on it could number but thirty or forty; and the greatest mob a mere handful, or an unconvincing murmur offstage. The cinema made possible the utilization of masses for dramatic effect, the picturization of sweeping hordes, irate crowds, weeping multitudes.

But the movies had one great peculiarity. Their action was silent, pantomimic. The written "subtitle" was their closest approach to a voice; and, though it came to be most skilfully used so that as the player's lips began to move his spoken words were flashed on the screen and one got a certain sense of "hearing" him, yet the emotion with which the words were delivered could only be conveyed by his facial expression and the pantomimic use of his body.

He was deprived of that tool upon which the actor had always depended more than any other, the *voice*.

No matter: Pantomime, plus the subtitle, plus

realism of scene, plus a low price of admission, proved everything needed to attract audiences in numbers far greater than the legitimate stage had ever known. And the fact that the photograph "negative" of one company of players could be multiplied into hundreds of "positives" and shown in as many theatres simultaneously, made fortunes beyond dreams of avarice for certain gentlemen engaged in producing and selling celluloid entertainment.

The first mechanical medium of dramatic expression had provided the world's first *mass* amusement.

There was a good reason why Mr. Thomas A. Edison was dissatisfied with his Kinetoscope. It was, to be sure, an "animated photograph"; but that was only part of what he had set out to achieve.

He had wanted an "animated photograph" that *talked*.

So the movie was born because of the original quest for the Talkie. Its father was Thomas A. Edison; but its mother was his already perfected phonograph.

At first the infant looked a great deal like its

mother. The Edison phonograph was not a very prepossessing instrument. In those days it used cylindrical records, and in place of a horn had a flexible tube with stethoscope-like attachment. You listened to it as if you were a doctor examining a heart.

The noises it made were so extraordinary that for years a man who could imitate them was sure-fire entertainment in anybody's parlor. But what a thrill it was to hear those tinny little sounds come out of a machine!

Even before there were Kinetoscope Parlors there were Phonograph Parlors in which you could hear anything from "Break the News to Mother" to "A Hot Time in the Old Town Tonight."

In the home the Phonograph relegated the old Music Box to the attic; it stood in a place of honor under the crayon-portrait of Grandma when she was sixteen. It was a "handsome piece of furniture" that looked like a cross between a sewing machine and a what-not. The "records" were piled up in boxes underneath it. Even then, the one you wanted was always on the bottom. If father was rich the phonograph had a horn—a huge gleaming affair that hung from a hook.

The neighbors came over on Sunday night and said it was wonderful what the world was coming to.

To Edison, however, the phonograph was an incomplete instrument. Very much as radio experts of the present day are striving to add "television" to the broadcasting of speech and music, he set about to add a mechanical moving-picture to his mechanical record of sound. His dream was that they be presented simultaneously.

There had never been a true motion picture, although there had been approximations of the idea. In 1832 a Belgian named Plateau and an Austrian named Stampfer had invented similar machines. Plateau's was called the *Stroboscope* and Stampfer's the *Phenakistoscope* or *Fantoscope*. These were discs in pairs, one having a sequence of hand-drawn phases of motion on its rim, the other having slits cut in it. When the discs were twirled, the successive pictures blended together into the semblance of animation. Variations of the *Stroboscope* and *Fantoscope* persisted for many years as toys.

The Magic Lantern was an old and well-known device. It dated all the way back to 1640 and

a German Jesuit named Athanasius Kircher. In 1853 another Austrian, Lieutenant Baron Franz von Uchatius, combined the *Stroboscope* and the Magic Lantern and threw the "moving pictures" upon a screen. But the pictures upon these discs were hand-drawn. A photographic series had never been made to "move."

The first attempt at animated photographs was made by a Philadelphian named Coleman Sellers in 1860. Sellers took successive "still" photographs of his sons and mounted them on a paddle-wheel device by means of which they were viewed through a stereoscope, giving a semblance of motion.

This machine, patented, was called the *Kinematoscope* (from the Greek *kinema*—moving, *scope*—watch).

Successively-posed photographs were thrown upon a screen, too. In 1870 Henry Renno Heyl, another Philadelphian, made a projection machine which carried photographs on thin glass, mounted radially on a wheel; they were passed one after another before the light beam of a "magic lantern." An effect similar to that of the Sellers *Kinematoscope* was thus made available to an

audience greater than one. The Heyl device was called the *Phasmatrope*; his "show" was "The Waltz"; six successive positions of the dance being recorded on the wheel and shown over and over again in time to music.

The *Kinematoscope*, with its one-man audience, made little if any money. Heyl showed *Phasmatrope* "moving" pictures to 1600 people in one performance, and the receipts were \$850!

Sellers and Heyl had been limited to posed photographs by the limitations of the photography of their time. It was the same prehistoric photography that used "head clamps" and that sort of thing to keep its subjects rigid. The glass plates on which negatives were recorded were coated with a wet emulsion and required exposures of several seconds.

Now, however, came the dry plate and the snapshot, and it was possible for the first time to photograph a moving object and get more than a blur on the plate.

In California Governor Leland Stanford made a bet. Connoisseur of horse-flesh that he was, he wagered that a racehorse at a gallop took all four feet off the ground at once in certain parts

of its stride. To prove his assertion, he engaged Edward Muybridge, a well-known Pacific Coast photographer, to make photographs of horses in motion and procure visual records that would substantiate his claim.

Muybridge first attempted this task in 1872 but failed because of the wet-plate slow-exposure drawback.

By 1877, however, dry plates and faster cameras had come. The photographer succeeded in getting a few "snaps" that fascinated the wealthy governor. They stirred Stanford's curiosity to know more about the movements of a horse's gait. Muybridge worked with a single camera; his results were pure chance. The governor suggested that he use a row of cameras and attempt to get successive pictures as the horse passed each of them.

This involved a mechanical problem that balked the photographer. He attempted to expose the different cameras by strings attached to their shutters and failed. His employer then detailed a young engineer, John D. Isaacs—since become famous—to the task. Isaacs achieved it by electricity. Wires stretched across the track were

run over by steel-shod wheels of the racing sulky; they energized electro-magnets that operated the shutters, the cameras being so located that as the wheels crossed each wire the horse was in the field of the proper camera.

Later an automatic machine was devised which accomplished the same result and operated one camera after another. All this was done in 1877.

As many as twenty-four cameras were used, and for the first time successive photographs, at regularly spaced intervals were made. They were almost, but not quite, the same sort of successive photographs used in motion pictures.

The difference was that they were made from different points of view, instead of from one camera. As a result, when Meissonier, in Paris, in 1882, mounted them in a form of Phasmatrope and projected them upon a screen, the horse was seen to be in motion; but it was as though he remained in one spot, while the ground flowed along underneath him, pushed by his hoofs.

This demonstration, like others, made use of transparent glass plates.

When in 1886 Edison invented the phonograph

he set about almost immediately to supplement it with "animated photographs." He determined to invent the Talkie.

The Wizard of Orange was in general familiar with what had been done along those lines. But in his first attempts he broke away from the paths of his predecessors to carry out novel ideas of his own.

He had recorded sound on a small cylinder coated with wax; now he wanted to record photographs on a similar cylinder coated with photographic emulsion. The photographs had, he knew, to be "successive" photographs if he was to get the illusion of motion. But since there was no camera that would take photographs in rapid succession he invented such a camera. He decided that there would have to be about forty pictures every second.

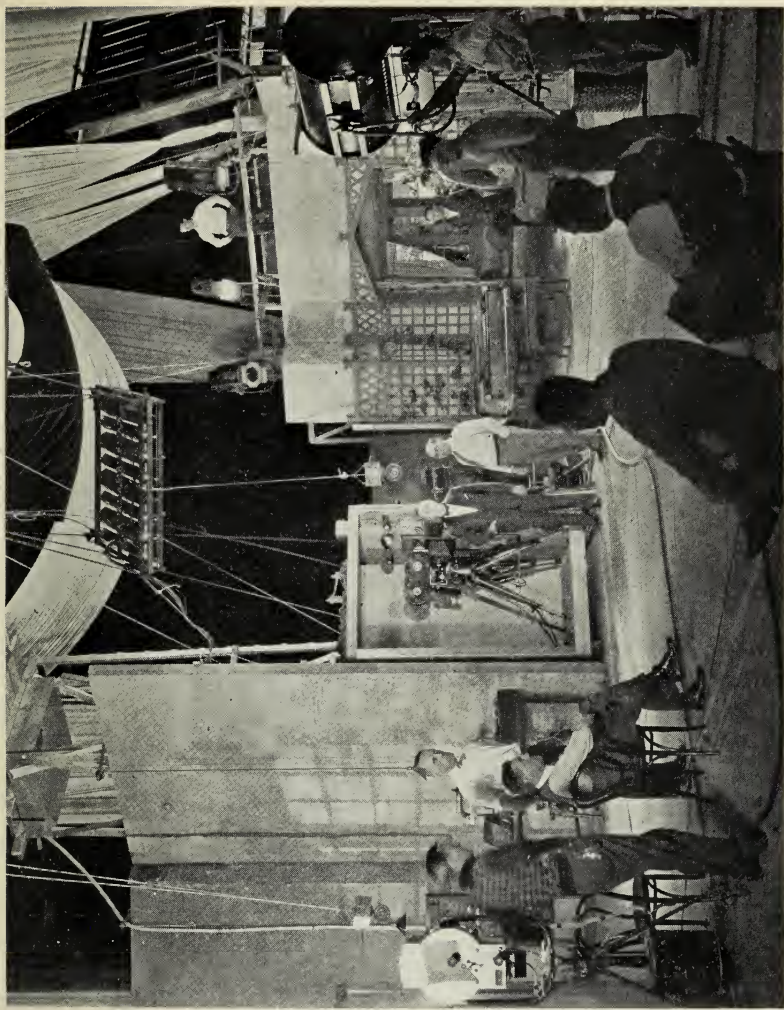
Forty-eight times a second the tiny drum he built hesitated in its revolution just long enough for an instantaneous snapshot to be made upon its sensitized surface. The pictures were only a fraction of an inch in size. But this was all right because he intended them to be viewed through a powerful microscope.

Simultaneously Edison planned to have his phonograph to pour song or speech into the ears of the one-man audience.

But it soon developed that nothing like that was possible at this stage of the game. Limitation of size was too great to overcome. The photographs were so small that their details were lost even when they were magnified; they just made a blur before the eyes.

So it was that the Kinetoscope was invented, the Kinetoscope that used transparent film and led directly to the modern motion picture camera and projection. Seeking a better record than the cylinder, and unwilling to use glass plates because they were heavy, cumbersome, and breakable, Edison turned to celluloid, just coming in as a "base" for a photographic emulsion. Further, after developing, he could put a light behind that and illuminate it. He ordered some of John Carbutt's celluloid "plates," but they wouldn't do. When, a year later in 1899, George Eastman invented modern "film," Edison secured some of that film. At once he found his "motion picture" problem was solved.

It was solved because he had invented a camera



One of the first Vitaphone sets at Warner Bros. Vitagraph Studio, Brooklyn

that would stop and start the film many times a second, making an exposure each time it paused. He called his camera the *Kinetograph*.

Apart from the peep show, he projected his animated photographs, very imperfectly, upon a screen. And both with the peep show and this projection, he synchronized, also very imperfectly, his phonograph. Thus it happened that in the month of October, 1889, there were talking pictures for the first time in the history of the world.

These first "Talkies" talked about as perfectly as any three year old infant talks. But they talked.

Five years later the *Kinetoscope* was brought before the public in Kinetoscope Parlors. And in 1895 the peep show Talkie was sent forth under the name of the *Kinetophone*. Then, as Terry Ramsaye says in his *A Million and One Nights*, "with the phonograph ear tubes and the peep hole of the *Kinetoscope*, the patron got sound and sight together. . . . The phonographic programs of the *Kinetophone* were supplied by Edison records made to synchronize in a fair degree, by mechanical means, with the film movement."

It failed.

Not more than fifty of the machines were made and less than that number were sold. Ramsaye wrote in 1925: "The talking pictures of 1895 had the brief life of a novelty, and in their short day, only a matter of weeks, ran down the same scale of diminishing interest which characterized every subsequent advent of a talking picture effort." What Ramsaye said in 1925 was true—in 1925. For during thirty years in which motion pictures became the dominant factor in the world's amusement, the movies took more of the world's dollars than had been spent on theatrical amusement since the beginning of time. During those years there were many attempts at Talking Pictures. All of them failed. All of them lost money at a time when the theatre was a money maker.

In 1925, if you mentioned the words Talking Picture to a showman, he looked around for your "keeper." He locked the safe and made sure that there was help at hand. Showmen had learned their lesson. A lot of them were sorry later that they had learned it so well.

The basic reason for this failure of talking pictures, while moving pictures were having such a spectacular success, was the fact that the "Sound"

end of all the devices was far behind the "picture" in its stage of development.

Edison had little trouble photographically. He could make sharp, clear, instantaneous photographs, large or small. Only mechanical difficulties lay between him and the moving picture: difficulties of replacing glass with film, of making machines that would pass this film through a camera and before a projecting light. The motion picture was perfected—mechanically—in a comparatively short time. Thereafter the problem was one of using it as a dramatic medium.

But Edison's phonograph was as primitive as the photographs of Daguerre had been half a century before. Like them, it made a "blurred" picture; its sounds were a grotesque parody of those that had gone into it. As long as the talking end of talking pictures depended upon machines like these for its success, it was doomed to failure.

Edison's phonograph was nearly as good as any of the "talking machines" that were to follow it for thirty years. Edison's Kinetophone was nearly as good as any of the talking picture devices that were to come during that period of time.

As far as those machines were concerned, the

theatre men were right. They might be all right in the laboratory or in father's parlor, but when you put them in front of an audience, they simply were not amusement.

CHAPTER IX

STRANGE STORY OF SOUND

GOOD Talkies became possible when research workers began to learn something about *sound*.

Sound is a peculiar thing. It's nothing but a lot of waves, vibrations. Usually waves in air—that same air that holds up airplanes and blows against your face when it's windy. Sound can also be waves in metal, or a liquid, or almost any substance. Such waves travel best in elastic, vibratory substances. In soft, putty-like substances they hardly travel at all.

When you hit a bell with a hammer it starts to vibrate; but that's not what you "hear." You "hear" vibrations in the atmosphere, caused by the bell-metal against the air, setting it in motion. The vibrating air beats against your ear-drums, and makes them vibrate, too. When your ear-drums vibrate, you "hear" something.

The "period" or "frequency" of these vibrations is what determines the "pitch" of the sound.

"High" notes are short little waves; low notes are long. The short waves vibrate fastest; the long waves vibrate slowest. The ear "hears" those that vibrate between definite limits. The first is about the noise made by a mosquito's battle-cry; the second that of a thick string on a base viol.

There are "sounds" higher and lower than these, but the human ear does not hear them.

Every object in the world has a vibration all its own. Just how fast it vibrates, and how long it continues to vibrate, once started, depends upon its shape and its elasticity. It always vibrates at the same "frequency." If its vibrations are within the range of the ear, we can "hear" them; otherwise we can't. When a nail, or a steel girder, or a finger is struck with a hammer, we can hear the resultant sound. Difference of the sound is due to the physical characteristics of the object struck.

As these vibrations travel through the atmosphere, they not only strike the ear, but everything else they pass. If they strike objects which are "resonant" to them, which have similar or related "periods" of vibration, these objects in turn begin to vibrate. Striking a note on a piano can

make a water-glass tinkle on the other side of the room. A very low note on a theatre organ can make the whole building tremble.

If that organ note, and the air within the theatre, and the walls of the theatre itself, should all happen to have the same period of vibration, the building could be shaken apart. This is a thing that is carefully guarded against in the construction of theatres and churches.

Every vibration that reaches the ear affects the senses. Hundreds of thousands of vibrations do just that every minute of the day and night. The ear develops an amazingly acute ability to distinguish them, where they come from and what they mean. A man driving through the traffic roar of Fifth Avenue can pick out the faint but shrill sound of the policeman's whistle half a block ahead, a sound caused by a bit of air enclosed in a hollow piece of metal. He can discover a new knock in his motor, steel striking on steel. He can become aware of a strange pulsating noise and realize that there is an airplane overhead. He can hear a newsboy shouting "Yankees win." And all this through a steady stream of comment from the rear seat.

The newsboy and the man's estimable wife are vibrating, by the use of certain muscles, short "vocal" cords in their throats; the sounds these make are further shaped by the shape of the throat, mouth and palate. They reach him through the air. If asked suddenly, the man would probably say that the newsboy speaks through his nose while his wife speaks through her hat!

The ear has perceptions of another kind. It can tell whether a note is "rich" or "thin." This is one angle of its ability to distinguish more than one sound vibration at a time. For a "rich" note is a combination of notes, something like that combination called a "chord." Every note has other notes that are said to be in "harmony" with it; the rate of their vibration is related mathematically to that of the original note.

Harmonious notes are pleasing to the ear and the senses. If notes that are not harmonious are sounded simultaneously, the result is a "discord": a "Barber Shop" chord.

The basic note of a "chord" is called the "fundamental." Any note can be the fundamental of a chord. And the strange thing about any note

when sounded alone is that if it is vibrating in a resonant medium, it not only sets up its own vibrations, but sets up harmonious vibrations—called “harmonics” or “overtones”—as well. These are the same notes that would complete its chord.

If a note in its travels encounters any object that vibrates harmoniously to it, it will set it in motion to some degree. It does this whether the object vibrates at the fundamental frequency or at that of a “harmonic” or “overtone.”

Rich voices vibrate with many overtones. Thin voices have almost none. It is the overtones that make some violins superb, while lack of them makes others sound like wailing cats.

Any person having four or five pianos in his home can develop an interesting after-dinner amusement out of this knowledge, it might even be done with ukeleles.

Most sound that we hear comes to us through the air. The Indians used to put their ears to the ground and hear the noise of hoofs miles away. But we get almost no chance to put our ears to the ground; so we have to do what our neighbors have always done, listen naturally.

Air, being a gas and therefore extremely elastic, is a good carrier of sounds, but very few sounds reach our ears exactly as they left their source. The waves that carry them, being nothing but movements of thin air, are bent in transit, shoved or blown out of shape, distorted. They can be bent by the objects which they strike in passing, just as water waves are smashed out of shape by a pier that juts out into the ocean.

They can be reflected from surfaces like walls or cliffs. If the surfaces are flat, the "echo" will come back a nearly perfect reproduction of the sound that caused it. If the surfaces are curved or broken, the returning waves may be an unintelligible jumble, as crazy as the "light-wave" reflection of a curved mirror. For this reason it is often impossible to distinguish words spoken in a room with a domed ceiling. Sometimes there is a double echo; an empty house is full of echoes and the ghost of speech may linger long after the voice is stilled.

Sound waves can also be distorted by the resonance of the air which carries them. If that air is enclosed within walls, so that it has "shape," it has a characteristic vibration of its own. This



Jack Warner, George O'Brien, Dolores Costello and Alfred Warner

invisible air-form, if set into motion, may twist and turn the other waves it carries.

The waves may be distorted by the resonance (or lack of it) of the walls, floors, ceilings, buildings. Flat surfaces do more than reflect the waves; they themselves are set into motion by them. There is a happy medium at which they do not distort them. Should they be too resonant there will be all sorts of cross-sound-waves in the air; should the walls be without resonance, the sound will have a hollow, dead effect upon the ear. Combinations of all these things are what determine the "acoustics" of a theatre, or of any room.

Fill your house with furniture and footsteps will no longer echo dismally through it. A voice from the stage sounds entirely different when a theatre is full of people than when it is empty.

Many an auditorium with acoustics so bad that not a word reached the balcony, has been saved by the proper hanging of draperies to break up the air spaces, prevent echoes, or deaden the resonance of walls. Sometimes the simple stretching of wires across the room will have this effect. Recently a building whose walls lacked

resonance was altered by cutting concealed air-pockets into them.

In a properly designed theatre the walls, the air spaces, and the shape and material of the stage and orchestra pit are all such that they have a harmonious relation to the voices on the stage and the instruments in the pit. In a theatre like that you can sit in the back row of the topmost gallery and hear the villain whisper.

Edison's phonograph was a sound machine. Or, rather, a pair of them: the recording apparatus, and the reproducing apparatus. The "record" furnished a link between the two.

The recording device was a machine for imprisoning sound vibrations. Sound waves that reached it were collected in a funnel and led to a sensitive diaphragm, which they caused to vibrate in turn. The diaphragm was connected to a stylus, which of course moved every time the diaphragm moved. The pointed end of the stylus rested in the soft wax of a cylindrical "master record" which was being rotated by machinery; it cut into this wax like a tiny plow, tracing a furrow that wavered. This furrow was the "record" of the voice.

The furrow was literally made up of frozen vibrations.

Before attempting to set these vibrations free again, an exact replica of the master record had to be made in a harder material, one that would not be destroyed if a stylus were to travel that pathway again.

In the reproducing apparatus the original process was reversed. While the record was rotated, a stylus was led down the furrow. As it glided through the frozen vibrations, it vibrated just as they did. It was connected to a diaphragm which of course vibrated too. The diaphragm transmitted its vibrations to a column of air which led to the ear, either by ear-tubes or through a horn. If it was a horn the sounds were "amplified" by it.

The theoretical effect upon the ear-drums was that of "hearing" the original sounds which had gone into the master record through the recording apparatus. But actually what the ear-drums heard was a parody of those original sounds.

There were several reasons why the sounds had changed during the recording and reproducing process. In the first place, a certain amount of

energy was required to move the recording diaphragm and to force the stylus into the wax as it shaped the furrow; this energy was supplied by the sound wave in air, which, being very elastic, was bent a little out of shape as it did the work. Apart from this, the original waves had already been somewhat bent out of shape through contact with the funnel that collected them; they had been forced into its walls like water into a hose nozzle. This gave them greater strength, but it jumbled them slightly.

The record in the master wax, then, was already a variation from the original sound.

These distortions increased during reproduction. The second stylus was never exactly the same shape as the first; it did not fit the furrow perfectly. As the duplicate record was worn, this lack of "fit" became greater so that the vibrations of the second stylus never entirely corresponded with those of the first. This of course had its effect upon the reproducing diaphragm.

And lastly, as these sounds were allowed to expand through a tube or a horn in their travels toward the hearer's ear, their carrier waves again came into contact with air spaces and materials

that had shape and resonance, and were again finally distorted. The greater the amplification, the greater the distortion.

The result of all this was that only the strong sounds came through, and even these were bent.

Overtones, those delicate shadings that determine the quality of any sound, were lost. One man's voice sounded just like another; musical notes were thin, "metallic." If an attempt was made to record many sounds at once, such as those from a piano, an orchestra, a band, all the lighter sounds were lost, and only served to blur those stronger ones that survived.

The process that was gone through in the Edison phonograph of 1886 was substantially the process of every other talking machine in the world until 1922. Victor, Columbia, Sonora, Brunswick, new Edison, and all the rest. They differed only in the construction of their minor parts. They got better and better, of course, as their delicate machinery was improved. Their tone was aided by the use of lighter parts, by improvements in horns and in the materials of which horns were made. They learned a great deal about the construction of diaphragms and of styluses or

“needles.” Some used steel needles, some used tungsten, some used fibre, some used jewels.

The cylindrical record was displaced by the “disk” for matters of convenience; although, theoretically, the “cylinder” made possible a more perfect record because its grooves always traveled beneath the stylus at the same speed. But the disks occupied so much less space it was easier to store a lot of them. So the disk became a better commercial proposition than the cylinder, and superseded it.

Edison, by the way, had thought so little of the disk that although his original claims covered both cylinder and disk recording, he had never completed the disk patents. The engineer, with his ideal of perfection, dominated the business man, with his ideal of practicability. Thus Edison, the engineer, lost ten fortunes in royalties that the business man would have gained!

Different manufacturers used different materials for their records; some used thin records and some thick. Some of their phonographs were beautiful pieces of craftsmanship. They brought music into hundreds of thousands, millions of

homes. But every one of them was crude and imperfect compared to what came after. They were machines.

Thirty years after Edison's phonograph the scientific knowledge of the world had been so added to that men began to think about the problem of the reproduction of speech along altogether different lines—electrical lines.

Radio had come into the world. Radio, too, was vibrations; waves very much like sound waves, except that radio waves traveled through the "ether" while sound waves traveled through the air.

It was inevitable that men should apply their new knowledge of waves, gained from radio, to sound waves. Sound and radio had always walked hand in hand. Less than five years after Marconi made his first primitive set of radio apparatus and proved that it would work as a "wireless" telegraph, other men were trying to convert sound waves into radio waves and *vice versa*. The answer to that problem would make radio-telephony possible.

When Bell invented the telephone, sound waves were converted into electric pulsations of the same

frequency. Bell's currents were carried on wires, however, and not through the ether.

The first crude radio-telephone apparatus was assembled in 1899.

Both the telephone and the radio-telephone used the Microphone to convert sound waves into electric currents, as they do to this day. In its simplest form the microphone is a movable diaphragm behind which are loose granules of carbon. A sound wave causes the diaphragm to vibrate; it alternately presses closer against the granules and moves further away from them, altering their resistance to an electric current which is flowing through them, and causing it to fluctuate in tune with the diaphragm's vibrations.

At the other end of the telephone line this fluctuating current is led through the coils of an electro-magnet, affecting its "pull" proportionally to the degree of vibration. The electro-magnet "pulls" against a second diaphragm—that in the telephone "receiver"—and the vibrations of this second diaphragm set up vibrations of the air—sound waves—which register on the ear. In the case of radio telephony, the pulsating electric current is impressed upon ether waves

and launched into space; the receiving set reconverts it from ether waves to electric currents of "audio" frequencies and these in turn affect the diaphragm of a telephone receiver or loud speaker.

But the microphone will only handle a limited amount of electric current. If it is made large enough to handle more, its diaphragm becomes so big and heavy that sound waves will not vibrate it.

Engineers, struggling to cover greater distances by telephony and radiotelephony, sought a way of amplifying (i.e. making stronger) the fluctuating electric current *without distorting it*. They had means at hand to amplify it; but always these means twisted the delicate wave-impressions so that the voice, as it came out of the other end of the wire, was no longer clear. In some instances it was unintelligible.

They knew that if they could only use the delicate, voice modulated current, as a "trigger," to control in exact proportion a heavier current, their problem would be solved.

In 1906 Dr. Lee DeForest, struggling to make a better radio "detector" than those in use at the time, improved upon a principle originally discovered by Edison and subsequently adapted to

radio use by Fleming, in England. He devised a vacuum tube which he called the "Audion," practically the same as the "tubes" we use in our radio today. This audion consisted of three metallic elements inside a glass bulb from which most of the air had been exhausted. Electric current flowed across the space between two of the elements (the "filament" and the "plate"), carried by those fascinating and newly identified units of electricity—*electrons*. The amount of this current was controlled by the amount and kind of current led to the third element—the "grid." It was this third element that De Forest added to the tube.

In 1912 engineers of the Western Electric Company undertook to connect New York and San Francisco directly by telephone and to have the line ready in time for the World's Fair which was to be held in San Francisco in 1914 or 1915 to celebrate the opening of the Panama Canal. These engineers recognized that the construction of De Forest's Audion was such that theoretically it might be made to serve as the amplifier they wanted. But when Dr. De Forest demonstrated it to them, they discovered that its use was lim-

ited to currents no greater than those which they were able to handle without it. When they attempted to put electricity through it in sufficient amounts to be of value to them they got very bad distortion, and before long the tube disintegrated and destroyed itself.

It seemed to the engineers, however, that if they pumped more air out of the tube than De Forest had done, in other words, created a better vacuum within the glass walls, it would be able to handle greater currents.

While this was going on, another experimenting physicist in the research laboratories of the General Electric Company at Schenectady, New York, had come upon the same problem in another way as he was delving into the mysteries of exactly what went on inside incandescent lamps, trying to make discoveries that would give them longer life and enable them to burn with less current.

And so, first in Schenectady and shortly afterward in New York City, the modern vacuum tube was finally perfected more than a quarter of a century after Edison had made the first (and then not understood) discovery that started the chain of investigators thinking.

The Western Electric Company immediately put the new tube to work for the Telephone Company. The line to San Francisco was opened in 1915. The new tube was able both to carry electric currents of considerable magnitude and to amplify them without distortion. At various points along the telephone lines the tube could be introduced and fresh electric energy added to "boost" the words that the wire was carrying. Soon afterwards the tube was applied to radio both by General Electric and Western Electric.

During the war, when the government assumed the responsibility for certain patent complications that had prevented its commercial use, the tube became responsible for an entirely new radio, based on the new principles revealed since its perfection.

By 1920 men had learned more about "waves" and wave motion than all the cumulated knowledge of the world had taught them prior to 1912!

One of the first things they learned was how little they really knew about sound. Curiosity about sound coupled with the availability of the modern vacuum tube amplifier, was presently responsible for three inventions that brought about

new "talking machines"—electric ones—and, a little later, the Talkies!

The first of these was the Western Electric *Public Address System*. Electric systems of this sort, designed to carry a speaker's voice to large gatherings by means of microphones, wires, and "loud speakers," had first appeared in practical use during the war when so many speakers addressed so many crowds. At that time a "loud speaker" known as the Magnavox appeared. It was first of the "dynamic" speakers now so popular. The Magnavox system was literally a telephone system, the speaker speaking into a microphone transmitter and his words being carried to Magnavox loud speakers instead of to the conventional "receiver." The Magnavox system used no vacuum tubes, or other amplifiers than the horn attached to the loud speaker. Unfortunately, distortion was so bad that speech coming from it was often unintelligible.

Secret of the success of the Western Electric Public Address System lay in the use of vacuum tubes to amplify the currents carrying the voice over the wires and to operate the loud speakers. The latter were what are today called "power

speakers." That was all there was to it: a microphone, current from which led to an "amplifying panel" where it was passed through vacuum tubes and made more powerful without being distorted; and from which it went to a new type of loud speaker. The voice emerged from the loud speaker literally without distortion; it was easily intelligible; it could be made loud enough to speak to a huge gathering.

It made it possible for the speaker to be any distance from his audience—even in another city! In short, the same thing that is done now by radio and the loud speaker in your home, was done in 1920 by wires.

Work on these speakers was carried to startling perfection.

It was greatly aided when, in 1924, the Westinghouse Electric and Manufacturing Company's laboratories developed the formula for a theoretically perfect horn, one that would not distort the sound waves after they left the diaphragm of the loud speaker. This was called the Exponential Horn.

The one drawback of this horn was that it had to be very long and slender, rather like the trumpet



Jack L. Warner

of ancient times; so long, in fact, that it was not practical. But in 1926, the Western Electric Company learned how to *fold* it up. Experiments showed that, strangely enough, even though the horn were folded, sound waves followed around its walls and emerged with the same result as though it were straight.

Using their accumulated knowledge of sound, in which by this time they were probably the greatest specialists in the world, in 1928 the Western Electric Company made an experimental loud speaker with which they "shouted" across the Hudson River at New York City! Words delivered into the microphone in an ordinary conversational tone were plainly audible three or four miles away. In the same year an airplane flew high over that city while a well-known actress sang and talked (and advertised a brand of cigarettes). The lady's words were carried a mile downward through the air to the people in the streets. The huge three-motored plane was so high that not a trace could be heard of the roar of its exhausts, but the whisper of the girl aboard it was thundered out louder than the bellow of an ocean liner's whistle!

The second and third devices that led to new talking machines and inevitably to the Talkie, were directly concerned with the old problems of making wax records and reproducing them. Scientists and engineers of the Western Electric Company's laboratories now had a perfect amplifying vacuum tube to work with. Actively they pushed forward toward the perfection of everything connected with sound. Soon they decided that the old method of making phonograph records by having the sound waves themselves perform the labor of moving the diaphragm and cutting the record, was clumsy and crude.

Their answer to the question was very simple. Again they converted the sound wave into an electric oscillation, amplified it through vacuum tubes, and used this powerful current to make the cutting stylus vibrate and leave its imprint in the soft wax! This was called electrical recording.

In old style recording the speaker had had to be fairly close to the recording apparatus. Now he could be any distance away! This achievement was to prove of far-reaching importance.

The reproducing problem was as simple. An

“electrical pick-up” supplanted the “reproducer” of the phonograph, and converted the recorded vibrations into electrical pulsations of the same frequency. These could be amplified to any degree desired by means of vacuum tubes, and then presented to an audience through a loud speaker unit and folded exponential horn—virtually the public address system. Distortion was almost entirely absent. All the overtones were there. The faithfulness of the reproduction was uncanny.

This was in 1924 and 1925.

The folded horn made it possible to combine these improvements in an ordinary phonograph cabinet of conventional size. The Victor Talking Machine Company was licensed to use the new devices and in 1925 presented them to the public commercially as the Electrola and the Orthophonic Victrola.

The problem of sound recording and reproduction, first tackled and crudely solved by Edison forty years earlier in 1886, had at last been perfected.

CHAPTER X

MAN'S MAGIC SUCCEEDS

Now that, in 1924, the Western Electric Company had at its command these amazing new devices for the recording, reproduction and amplification of sound, it sought to employ them in every form possible. Edison had thought of combining the phonograph with animated photographs. And as just even before film and the movie projector were invented, these 1924 laboratory workers seized upon the talking picture idea. They determined to see if it was not possible to synchronize this highly-perfected electro-mechanical speech of theirs with the now highly-perfected motion picture.

Synchronization, getting sound and pictures to keep step, had always been the will-o'-the-wisp of the combination of phonograph and motion picture. It sounded plausibly easy; it was actually cussedly difficult. Apart from quality of sound

reproduction, it had been a continual baffler to talking picture experimenters.

For though it was easy to get approximate synchronization, the coördination of the human eye and the human ear was so acute that audiences detected and objected to any variation between a screen speaker's lips and the sounds that he supposedly uttered. If these did not coincide perfectly, the talkie voice seemed to wander away from its owner and the listener no longer connected it with him; it might be anybody's voice. Approximate synchronization was worse than none at all.

Perfect synchronization was well-nigh impossible to achieve. To begin with, it involved synchronized recording. Sound was recorded by a vibrating needle that cut a groove in wax at a rate of nearly a hundred feet a minute. Motion was recorded by a series of photographs—1440 of them in the same period of time. The sound recorded on each 1-1440th part of the 100 foot sound track, then, had to correspond to the proper one of the 1440 photographs!

This meant that both camera and sound-recording turntable that carried the record had to

rotate at constant speed; and that their speeds had to bear a constant relation to each other. In other words, the pair had to be linked in some way to keep one from getting ahead of the other.

The compelling reason for this perfect relationship in recording was to enable the results to be simultaneously reproduced with equal perfection.

But suppose the cameraman that made the pictures had cranked his film at the rate of 1600 pictures the first minute and 1200 the next. How on earth could a projector be designed that would speed up and slow down to keep this erratic film in synchronism with a constantly turning record?

The answer to synchronized projection was like that to synchronized recording. Both the projector and the record must rotate at constant speeds that bore a constant relation to each other. They, too, must be linked. Furthermore, the speeds at which they revolved must be the same speeds at which the pictures and master-records were made. Otherwise both the motion and the sound would be distorted.

It was painfully like running four trains down four parallel tracks without letting any one of

them get so much as six inches ahead of or behind the others!

When Edison used a form of electrical linkage between film and sound, he achieved fair synchronization. The tendency since then had been to leave the matter of "keeping the trains together" to their respective engineers, the cameraman, recorders and projector operators. If the engineers were skilled, the results were generally possible. If the engineers were unskilled, the results were terrible.

But the early Talking Picture experimenters were up against problems that precluded the simple solutions used later. It was always more difficult to make a phonograph record than it was to make a motion picture. The delicate recording apparatus had to be located where there were proper acoustic conditions. It could not be carted about as could a movie camera. And often conditions that were proper for recording were impossible for photography. It was tormenting work.

The first attempts after Edison, then, gave up the idea of making the two records simultaneously. The *Cinephone*, *Vivaphone*, *Cameraphone*, and other machines that appeared between 1903 and

1910, recorded the sound first and then attempted to "fit" the motion pictures to it as they were made. The record was simply played over and the actors, going through their parts, would make their speeches in unison with it after the photography was done.

Problems of reproduction were also great, principally because of a simple but tremendous obstacle. Motion pictures were invariably reproduced through a projector located at the back of the theatre; the pictures were thrown over the audiences' heads and appeared on a screen in front of them. And though it was desirable to connect the projector with the phonograph for talking picture purposes, every illusion was lost if the phonograph were back of the audience like the projector. The voices must appear to come from the screen.

There were early attempts to connect the two machines by a geared drive-shaft that ran under the theatre floor. It reached all the way from the "operating box" to the stage, so that the phonograph turntable could be turned by the same motor or hand crank as the projector. This idea was not successful because the long shaft and

many gears involved too much "lost motion." Moreover, constant breaks in the film of the day made it seem that although a rigid connection was theoretically desirable, something more flexible would be more practical.

The *Cinephone* depended upon the movie operator for its synchronization. Connected to the phonograph (on the stage) was a small illuminated box carrying a dial and movable hand; as the phonograph played the hand went around and around the dial. A similar dial and hand were photographed on the film at the time the motion picture was made. The operator was supposed to keep this second dial and hand in the same position as that connected to the phonograph. If it lagged behind he turned faster until he had caught up, etc. This device was extremely crude, and the synchronization only approximate.

The *Vivaphone*, a little later, utilized the same basic idea; but instead of depending upon dials it had a delicate electric instrument connected to the two machines and mounted in front of the operator. It had a pointer which indicated "faster" and "slower" and guided him in maintaining synchronism which was yet imperfect.

146 THE FILM FINDS ITS TONGUE

In 1910 the Gaumont *Chronophone*, a French machine, appeared, using an electrical linkage between motion and sound, both in recording and reproduction. Cameras, projectors, recorders and phonographs were driven by direct current electric motors built to run at constant speed.

Photographs and records were made simultaneously and in synchronism that was nearly perfect, though not quite, because of minute, unavoidable differences in the motors. To allow for these differences and to overcome the results of film breakage an attachment was put into the controls of the motion picture projector that enabled the operator to vary its speed within limits so that it could accelerate or slow down until it was exactly with the phonograph. The flaw lay in the fact that perfection of result thus depended upon the operator's skill.

The *Chronophone* was an enormous advance over anything that had appeared before it. It stimulated much activity all along talking picture lines. It enjoyed a modest success in France for many years. In America it resulted in the arrival of a number of competing machines, the most noteworthy of which was the 1912 Edison *Kine-*

tophone. This machine also had nearly-perfect electrical synchronization; and, in addition, had the new Edison phonograph as its medium of sound reproduction.

The 1912-1913 talking picture activity was, in its small way, similar to the excitement of 1928. All sorts of wild predictions were made; a number of theatres were equipped with the new devices; and, for a time the public was caught by the novelty of the thing.

But it was just that—a novelty. But the phonograph that was so acceptable in the home proved no substitute for a stage voice. Audiences quickly tired of the innovation, stock in the new business fell, and the resultant financial crashes reverberated throughout the show world. They were remembered for many years.

The next talking picture attempt of any consequence came after the war when Dr. Lee De Forest, radio inventor and engineer, attacked the problem from a new and radical angle and produced the *Phonofilm*.

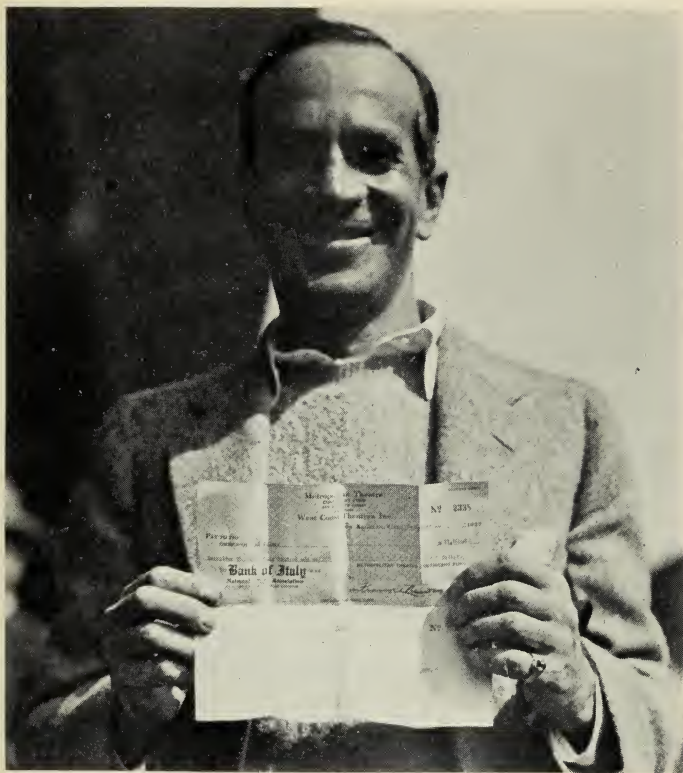
The basis of De Forest's work was an extremely sensitive electric lamp. Converting sound into a fluctuating electric current by means of a micro-

phone, he was able to use this electric current to vary to intensity of this lamp. From the lamp he took a photographic record of its intensity on the same film that was used for motion pictures of the speaker. This "photograph" of the sound occupied the narrow section of the film outside the sprocket holes.

In the projector, a pencil of light shot through this continuous photograph of sound, was used to affect a photo-electric cell, controlling the amount of electricity which passed through that cell. Thus a second current was set up which fluctuated exactly as the first had, and could be used to actuate a loud-speaker. In another way it was the same feat that had been achieved by Western Electric engineers.

The particular advantage of the system, as applied to talking pictures, was the fact that it could not get out of synchronism. Both sound and motion were recorded simultaneously on one and the same film, and therefore stayed together as long as the film itself did.

Its disadvantages were several. The "light" record of sound was not as delicately perfect as was the wax record; a scratch or blemish on the



Jolson holding check for \$17,500 paid him by the Metropolitan Theatre, Los Angeles, for an engagement of one week

“sound track” of the film made a harsh “static” noise in the loud speaker; and film is very subject to scratches. Moreover weather and heat cause film to expand and contract considerably, as does also its “development.” The result was that the “record” was always changing. On a wet day the film would swell and thicken; on a dry day it would get thin and hard. Every such change had its effect upon the sound and on the quality of sound.

Moreover, De Forest was not able to use an amplifying system that involved modern vacuum tubes. The patents to those tubes were not in his hands. His device, therefore, while it had many advantageous points, was a commercial failure, and only served to stiffen theatre men in their opposition to talking pictures.

Western Electric had also been working along lines of recording on phonographic film during this period, but had decided to concentrate on wax recording because of the forty years of cumulative experience which had proved the success of that method. They had, then, to overcome the old difficulties of synchronization between separate sound and motion records.

At first they used a direct shaft connection, enclosing camera and recording apparatus in one sound-proof fixed booth. But the arrangement was bad, as it made a sound that was picked up by the recording apparatus. When Sam Warner, working later in the Flatbush studios, demanded more flexibility Western Electric worked out a new application of what are called "Synchronous Motors." These are electric motors driven by three phase alternating current; they automatically keep in step.

An alternating current is one whose direction of flow changes at regular intervals. Three phase alternating current is in reality a triple stream of electricity; it might be produced by leading the electricity from three separate "alternators" into a single wire, timing the machines so that the alternations of each lagged a third of a revolution behind its neighbor.

Actually three phase current is produced by a single machine. It has this unusual quality—it can be used to drive an electric motor (or a number of them) at exactly the same speed at which the "alternator" which is the source of the current revolves. If the alternator is making 60 revolu-

tions per second, then each of the three phases of alternating current is passing through sixty electrical cycles every second, and any synchronous motors which are connected to the system are revolving exactly 60 times every second.

By driving the motion picture cameras and the sound recording apparatus with synchronous motors connected to the same source of current supply, the two could be made to rotate together perfectly. This gave synchronism of recording.

The problem was similar when it came to reproduction. At last it was possible to make the phonographic turntable (as on a regular instrument) a part of the motion picture projector and *still have the sound come from behind the screen*. For the loud-speaker of the Western Electric system could be any distance from the phonographic turntable. All that was needed to connect the two was a pair of wires. They could even be connected by radio!

One motor was used, then, to drive the projector and the turntable; the two were mechanically interlocked so that it was impossible for the projector to turn unless the turntable turned too.

One other thing was necessary: the sound record

and the movie film must be started together, both in recording and in reproduction. In recording this was done by setting both wax and film at a starting point and marking it, and then throwing in the switch that started both apparatuses to turning.

In reproduction the needle was placed upon the record at a starting point indicated by an arrow, while one "frame" of the film marked START was placed in the "gate" of the projector. Since the two were thus placed at a synchronous point to begin with, and since one could not move without the other, they must always remain in synchronism.

The Talkies were now mechanically complete. It remained to create a product that would sell. The story of this creation is the story of the Talkie Studio.

PART III

PRODUCTION

THE STRUGGLE TO MAKE A SALEABLE COMMERCIAL
PRODUCT

CHAPTER XI

SCIENCE AND SHOWMAN

So far the Talkie mechanism had been in the hands of engineers alone. The machine that had been demonstrated in the laboratory was crude, far from the perfection necessary for purposes of showmanship. It was good engineering, but poor amusement.

Before it could be used professionally it must be developed, particularly along lines discernible only by men who knew the motion picture world and the theatrical business. These lines were often diametrically opposed to those normally followed in the laboratory.

The showman and the engineer present a rather amusing contrast. Each of them is in his way vital to the community, each of them is a public servant. Yet they follow an ideal so different, albeit equally sound and businesslike, that they might come from different planets and so have learned to think in different ways.

The engineer makes and sells solidity; something that works, that does what it is supposed to do, that performs some useful service, toil, labor. He is concerned with exactitude; with prosaic details; with rational explanations; with unchallengeable statements.

The showman creates and sells sensation; he appeals to the heart, the emotions, the senses. The very root of his calling is the conjuring up of a world of imagery, of something that is not so—a dream world. He glosses over the harshnesses of life; his crooks may do bloody murder and yet have souls of gold. He is a wizard at explaining away the inexplicable; a master of happy coincidence. The reprieve always arrives. Justice triumphs. The final close-up is a kiss. Only the wicked have disappointments; and they are so wicked that all of us *know* ourselves superior to them.

Now engineer met showman in the affairs of the talking motion picture. Workers at such extremes of the productive world attempted to comprehend what was needed by each other. And there inevitably ensued a combination of mutual admiration and mutual clash that their

common task was almost destroyed in the heat of their association.

The men on both sides who were actually doing the thing with their hands in the studios came to concede full appreciation to those in the opposite camp. It was the men in the business offices who could not understand each other. The business of showmanship and the business of engineering were such different businesses.

The beginnings of talking picture cooperation between the two camps of artizans took place that summer of 1925 in the old Vitagraph Studios in Flatbush, on the outskirts of Brooklyn. Across the East River sprang the pinnacles and spires of Manhattan, whose huge movie audience could give success or failure to the Talkies. These were the studios in which John Bunny had once been the screaming comedian of his day; studios in the corners of which the shadows of Clara Kimball Young, Anita Stewart, Lillian Walker, Maurice Costello, Sidney and Mrs. Drew lurked. The memories of a hundred old photoplays stalked out of the dusty stages and paraded across men's memories.

They were dusty stages now. Vitagraph was

gone, sold to Warners. The studios were deserted save for the Film Laboratory which printed thousands of positive prints from negatives made on the Warner lot in Hollywood, and shipped them to exhibitors throughout the east.

A group of engineers and motion-picture makers walked through the place one day, looking it over, planning their cooperative Talkie work. Carpenters arrived, and electricians; and there was a bustle, a sound of hammers and voices. Men were installing a recording apparatus, for making wax records by electricity. Others were cleaning up a corner of one of those huge deserted stages, testing old circuits for lighting movie sets by arc lights.

S. S. A. Watkins was in charge for Western Electric. He had a group of men including H. C. Humphrey, R. C. Sawyer, and George Grove. Sam Warner carried on the Warner Brothers' end. With him he had Ed duPar, a cameraman, Bert Frank, a cutter. On occasion Herman Heller, musical director of the Warner Theatre in New York, came over. Heller was the first "Talkie" director because all the first numbers were musical.

The apparatus was in. One day they made a record.

What it was is lost now in the obscurity of men's minds. Its subject was painfully overshadowed by other sounds that came out of the horn when the record was "played back." Little extraneous sounds, irritatingly present. It was a pretty bad piece of business.

The whirring of the camera was loudly audible. Someone could be heard walking across the other side of the stage: there were his footsteps frozen in wax. Someone's cough. A creaking chair. A muffled rumble—that was a train going by on the elevated tracks outside the studio. Noise—recorded noise, caught in the wax together with the sounds that were meant to be imprisoned there.

The film men looked at each other. There was going to be more to perfecting this thing than they had thought.

It was fortunate that Sam Warner was so interested in the mechanics of picture making; fortunate that he saw mechanical obstacles as things to be overcome. For many of the obstacles that confronted the workers seemed on their face to be insuperable.

There were two direct ends in view: first, the bringing of the system to a point where a full-length picture (six to ten reels) could be accompanied by the synchronized recording of an orchestral score. This work they came to call "scoring" the picture. Second, bringing the system to a point where one-reel talking and singing pictures could be satisfactorily recorded and reproduced. Those contemplated were to have opera singers and other important performers as their subjects. They were to be used to round out a program, to introduce the novelty and to capitalize the marvel of synchronization between picture and sound without resorting to the dramatic talking picture. These one-reel pictures came to be known as "talking shorts"—"short" being an abbreviation of the movie term "short subject."

The success of both these aspirations depended first of all on getting rid of the extraneous noises now caught by the sound. That was a hundred jobs in one. But beyond it were important technical matters.

Time had been when a multiple-reel silent film was shown reel by reel, with a "One Minute

Please" interval between each reel. Later, two projectors had been employed; as the reel being shown on one of them was about run out, the second was started and cut in. For a moment the audience saw both reels blur together, until the light from the first was cut off. Later still the two projectors had been interconnected, so that as one was cut on the other was cut off, and film had been so cut that this "switch-over" occurred during a sub-title or at some such point where it would not be noticed.

There was no corresponding way, when work started in Flatbush, of switching from one sound record to another. How, then, were they going to "score" pictures? Would it be necessary to go back to the old way and stop the projectors while the records were changed? Or could they develop a "sound switch-over" that would still maintain synchronism?

The other matter—that of making one-reel shorts—hung not on "sound" difficulties, but on the motion picture camera. A reel of film, as shown in the theatre, was about a thousand feet long. Its showing took between ten and twelve minutes. The sixteen inch size of the Western

Electric wax record had been determined by this length of film; one record was designed to contain the sound that accompanied one reel.

The last difficulty of all, and a sweet one to contemplate, was that Western Electric had designed its whole talking picture apparatus to run at a speed corresponding to the exposure of seventy-five feet of film per minute. Motion picture practice exposed *and projected* film at a rate of ninety feet per minute!

It was not a question, then, of adapting Warner studio technique to accommodate the seventy-five foot speed. Shows all over the country were timed to the ninety-foot rate and their projectors ran at that speed. Any variation from it would mean a demand upon the entire exhibitor's world, and would be an obstacle in the way of the innovation's adoption.

The entire Western Electric Talkie apparatus had to be remodeled to accord with motion picture practice.

Much apparatus that had looked pretty good in the laboratory was being remodeled, those days, to accord with motion picture practice. And much motion picture practice was being

forcibly bent into new shapes by the demands of engineering. Some of the changes came painfully on both sides.

The "thousand foot take-up" problem was solved by the joint effort of Warner cameramen and the Bell-Howell people, makers of motion picture cameras. The "switch-over" was evolved by Western Electric technicians. It was a double-amplifying-rheostat, the points on one side of which led to the electrical "pick-up" of one reproducing instrument, those on the other side leading to the other. These points were numbered, and the switch served both as amplifier control and as switch-over. If record number one was being played on point 5, record number two could be switched to by a single quick turn of the dial to point 5 on the other side. This would open the circuit between number one's pickup and the loud speaker, and close that between number two's pickup and the same loud speaker. The amplification would be the same in both cases. Western Electric technicians remodeled the system to run at the ninety foot speed. These things were the labor of weeks.

Meantime the battle against noise was on.

Noise was anything that it was not desired to record. Sound was what you recorded; you hated noise. You wanted to record sound perfectly; you wanted to eliminate noise altogether.

There were two kinds of noise—"surface noise," commonly spoken of simply as "surface." This was in part electrical and in part due to a combination of many infinitesimal sounds, resonances, slight echoes, imperceptible to the ear. It was noticeable as a "breathing" sound in the loud speakers. It was not objectionable if the "breathing" were low, but when it became a scratchy, stertorous breathing it drove the workers to despair because its source was often most elusive. In the early days it was invariably scratchy and stertorous. The other kind of noises were those obvious extraneous noises, coughs, footsteps, noises outside the building such as automatic horns.

The camera was worst offender of all. There it was in every record its characteristic whirring was plainly audible and most objectionable. If you moved it so far from the microphone, and the subject, that the whirring was not recorded definitely but merely merged with the "surface,"



Rin-Tin-Tin, famous dog star, entertains

then the pictures it made were "long shots." But the movie men demanded "close ups."

The camera had to be got silent. This could be done either by making the instrument itself noiseless, or by enclosing it in a sound-proof booth. Of these remedies the first was much the more preferable. And if, as this is written three and a half years later, any one will step forward with a practical silent motion picture camera he will collect reward beyond dream of avarice for his invention. No one has achieved it yet.

The motion picture camera is a device for moving a reel of sensitized photographic film past a lens, halting it there sixteen separate times during the passage of every foot (ninety feet a minute); halting it just long enough for a photographic exposure to be made. Its whole secret is in that intermittent motion, that starting and stopping the film hundreds of times a minute. If it ran past continuously the exposures would be blurred. And though it is machined to the delicacy of a chronometer, there is still a little chuckle as it does its work. It will not be still.

The sound-proof booth, then, was the only

practical solution. The original Western apparatus had both its camera and the recording apparatus enclosed in a joint booth, connected together by a shaft and driven by a common motor with careful speed control. As this booth was mostly soundproof, the noise that was caught by the recording apparatus was not so much extraneous noise as that of the shafting connecting it with the camera.

However, this idea of camera work and recording was absolutely impossible from a motion picture point of view. No picture in the world could be made with a camera as limited in action as that, a camera that must always remain in one place, at one height, and that had to have all the action brought directly in front of it. It might do for the laboratory; but never for practical film work. It would be too monotonous.

The two had to be got separate. Thus the separate soundproof booth for the camera was worked out, and camera and recording apparatus were driven by synchronous motors, taking current from the same source.

A booth was built about seven feet high, four feet deep and three feet wide, mounted on rubber

tired swivel wheels, with a door cut in the back for the ingress and egress of the cameraman and his machine. There was a square hole in the front of it for the camera to "shoot" through. And in order that no camera noise could come through this hole, felt sound-insulating material was fastened, in the shape of an invested pyramid between its edges and the outer part of the lens; the lens stuck its glassy eye out from the depths of a felt-sided funnel.

When the camera was cooped up in this booth its noise was quite adequately stifled. But its flexibility was still not as great as desired, though much greater than when it had been rigidly confined with the recording apparatus.

In the evolution of the motion picture the movie camera had come to be used with the utmost freedom of operation. Never was a camera simply planted in front of the action and shot straight ahead. Each scene was given photographic treatment that seemed best adapted to it. The attempt has always been to get away from the stiff rigidity of mechanical photography. Height of camera, "swing" to follow action, "angle shots," trick shots, shots which started as

long-shots and ended as closeups, the camera being carried on a moving platform, were all part of the technique.

Indeed, use of the camera, the direct medium of cinematic drama, had become an art. And now science said that, for the sake of talking pictures, all this should be sacrificed; the cameraman should be put into a hot, stuffy booth (which he hated) and flexibility foresworn.

But this was one of the points in which the showmen had to give way to science. The cameras went into booths, and have stayed in them ever since, although the booths have not remained the crude affairs they were at first.

Other extraneous noises within the studio were curtailed by the simple expedient of enforcing silence upon every one but those actually speaking or singing for record. This silence was maintained from the time recording started until the scene was finished. Even the director, who had been used to using his voice (through a megaphone on occasion) had to be still.

Extraneous noises outside the studio, however, were beyond control. If a small boy uttered a piercing shriek on the other side of the wall there

was just a chorus of theatrical expressions on the inner side, for the record was ruined!

It became a fundamental of talking picture making that it must be done in a studio whose walls were soundproof, like those of the camera booth! That was for the future. The Flatbush studio remained as it was. One day a camera booth's door became unlatched during recording, and the sound of the camera spoiled the "take." After that the cameramen were locked in!

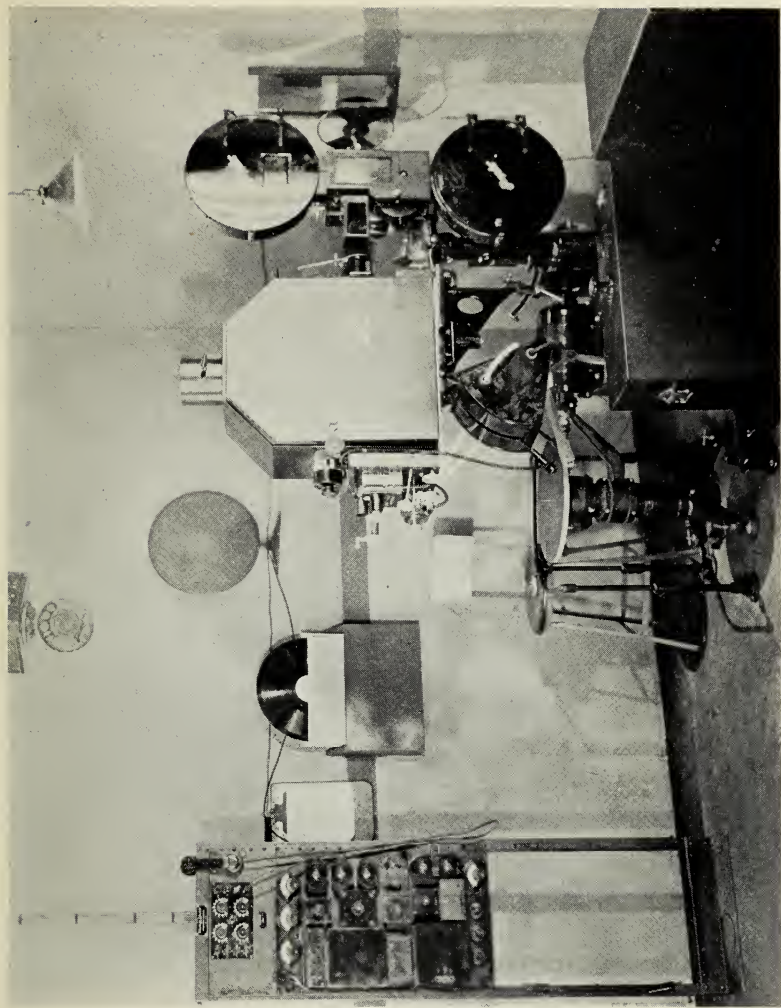
So, day by day and week by week, the work went ahead and lessons were learned in the hard school of experience. "Surface" still remained a problem. Many of the things that caused it could only be guessed at. The chief source of it was not discovered for months, long after Flatbush had been abandoned. Its sources were chiefly noises undiscernible to the ear, and therefore most baffling.

Some of them, it was evident, had to do with the shape and size of the studio. This was a matter which also affected the quality of sound-recording. Echoes, resonances, created cross-waves of sound that not only had a slight effect upon the microphone, but gave rise to "hollowness" of recording,

or sometimes to the effect of "muffled" voices. It was found that by hanging drapes of heavy monks-cloth at strategic points to break up large flat wall surfaces, this effect of the room upon the recording could be altered a great deal. The use of such things as scenery—"flats," as they are called—to break up the room into irregular divisions, also had its effect upon the sound.

And there was much to be learned about the use of the apparatus itself. Fundamentally, the trapping of the voice in a microphone and conveying it to a record was the same problem as that encountered in broadcasting. The great difference was that in broadcasting the voice, current was converted into a radio frequency and thrown into the ether. In recording it remained at "audio frequencies" and was led to the recording stylus and the wax.

In recording it was found necessary to use a "monitor" between the microphone and the wax, just as monitors were used in broadcasting. A monitor is an amplifying panel with a dial that controls the volume of sound very much as the simplifying dial on a home radio set controls it. The man operating this dial listens to the sound



The first Vitaphone Projection Room.

as it comes through from the microphone. If the voice is too loud he cuts it down; if it is too low, he strengthens it. Good monitoring adds immeasurably to the quality of recording.

When more than one microphone was used, each of them had an amplifying dial for monitoring. A panel containing more than one such dial was called a "Mixer."

The man at the monitor heard the sound come out of a loud speaker. He had, therefore, to be in another room from that in which the microphones were located so that his loud speaker would not blur the sound being recorded.

Apart from monitoring, the proper use of microphones played a great part in the quality of the sound. It was unfortunately impossible to use them as they were used in radio, directly in front of the speaker and two or three feet from his lips. That was the ideal way, but it put the microphone right in the foreground of the photographic action and destroyed the illusion that the speech was being heard direct.

Instead, the microphones had to be hung from above, located two or three feet higher and just in front of the subject, just out of the photograph.

That was a concession on the part of science to the motion picture. Now the motion picture had to make a counter-concession to science as it was learned that a speaker must keep his lips at about the same distance from the microphone during the entire time of his speech. If he moved his head away suddenly, the quality of his voice changed! It was a painful bondage. The motion picture, used to and demanding fluidity of action, protested vigorously, to no avail. The only concession that could be made was the placing of several microphones within the scene of the action, so that the subject could move from one to another between speeches, and thus gain some freedom of motion.

CHAPTER XII

THE CHILD GROWS FAST

MEANWHILE business happenings in New York had wrought many changes in the talking picture scheme.

The installation end had become the province of a new Western Electric subsidiary called the Electrical Research Products Company.

Some of the Warner and Vitaphone employees had gone over to Products. Some of them had stayed with Vitaphone; now some Western and Products people came to Warner and Vitaphone to carry on the technical end of the work. Such men as George Grove, who had always been in close touch with the Western organization (even though they had been employed by Vitaphone for more than a year), now were severed from that laboratory world altogether and plunged into this one which was concerned with using equipment rather than making it. They became imbued with the spirit of turning out a product.

It was a strange mixture. The Western men had about them somewhat the air of the monastery; their deity was science, exactness, research; they pursued their tasks methodically, confident that in the end they would reach their goal.

Compared to them the movie men were hard-boiled; a gang who got what they were after in the most direct manner possible; a gang to whom speed was important; a gang conscious that every minute wasted added to the cost of the particular picture they were working on. They never allowed themselves to forget that fact. They were a gang used to slapping in a little wire, getting "juice" through . . .

In meeting these people and the force that half drove and half inspired them, the ex-Western Electric people encountered factors that had only partly been present at the Manhattan, where the Western idea had more dominated the scene.

But as a result of the new atmosphere both sides learned much about the technical use of Vitaphone during that winter of 1926-27. They learned one curious thing. Some of their records seemed to be the least bit out of synchronism. They tracked this back and hunted everywhere for

the cause of the error, only to become convinced at last that there was no error; that the recording was actually a perfect record of what singer or speaker had done before the camera and microphone.

Thus they learned that all people do not speak alike. Particularly when singing, people often "form their tone" with their lips and throat before the sound actually comes forth, giving an effect when recorded of being out of synchronism. The audiences expect to see the sound in that peculiar consonance with the action of the lips,—yet the actor doesn't make it so!

To overcome this point, they adjusted these pictures and records and sent them out actually a little bit out of synchronism. The audiences thought they were perfect then. Nature had been improved upon!

This is one of the great assets of the disk method of recording: the fact that each pair of films and records can be adjusted and synchronized perfectly. When the sound is recorded by the film method, such as the present Fox-Case uses, it is fixed on the film with the pictures and any adjustment between the two is impossible without a

long and complicated re-recording process which involves difficulties greater than can ordinarily be solved.

Another peculiar thing about synchronism was learned as soon as installations were made in large theatres.

Sound travels at a speed of 1100 feet per second; light travels at a speed of 186,000 miles a second. In large theatres the vision of moving lips reached the back rows before the sound had traveled to them! Sometimes the difference was as great as *four frames of film!* In such houses as the Roxy in New York this was a great obstacle to putting in talking pictures.

The only way out of it—and that one not entirely satisfactory—was by giving such houses special prints, synchronized so that they would sound right in the middle of the theatre. These, then, would be about two frames out for the people in the very front rows and two frames out for the people in the very rear rows. Two frames was not an impossible difference of synchronism; and the bulk of the audience would hear them in exact synchronism.

This, too, called for perfect cutting: the cutter

must have an acute and perfect ear, must himself be perfectly synchronized between sight and sound, and must have a sense of mathematics. It called for a degree of exactitude hitherto unknown to the movie profession.

The profession was being called on to obey the discipline of engineering. It was catching up with the age in which we live.

The people in the Manhattan were fascinated by what they were doing. Indeed, making talking pictures is one of the most fascinating things in the world. Sometimes the whole technique of direction and use of the microphone was changed between the beginning and the end of a picture—so that with their new knowledge the producers went back and did it over!

While the cutters and film men were learning these things, the technicians were having a great fight with "surface," i.e. "shadow" noise. The worse thing about "surface" was that it seemingly couldn't be controlled. It was being caused by something that they couldn't detect. Some pictures were made, and their records contained very little of the accompanying scratch; others were almost spoiled by it.

One great difficulty was that the recording apparatus was not only sensitive to sound, but electrically as well. The Warners had begun to learn that in Flatbush when, to their astonishment, they made certain records and found that they contained not only the music that had been deliberately put into them, but *other ghost-like music that must have come out of the air!*

There was only one way in which music could come out of the air, and that was by radio.

The thing had been proved when, right in the middle of one of their records, a voice had suddenly announced that this was Station WEAJ in New York City!

When they had moved to Manhattan, one of the greatest radio crossroads in the world, there had been still more trouble from the ethereal art. Certain settings of the amplifying dials would "tune" the recording apparatus for some radio station, and the radio signals would not only be picked up, but recorded on the wax. They even picked up static.

The only way to overcome all this was by what is known to radio engineers as "shielding." This meant enclosing their apparatus in metal that



Al Jolson and his "Discovery," the child actor Davey Lee

would absorb the penetrating radio waves. They had to shield every bit of wire, every vacuum tube, every transformer and condenser. And still the surface noise remained! It was evidently something inside the building, something connected with their own work. But what it was nobody was able to discover. This went on for weeks. Finally, in desperation and with a great faith in his electrical ability, Sam Warner wired for his old friend Frank Murphy, chief electrician of the Warner studios in Hollywood, to come to New York and see if he could discover what had baffled all of them.

Murphy, little bantam of an Irishman, arrived and strode into the place, all curiosity to see the inner workings of these talking pictures of which he had heard so much. All day long he watched them working with a pair of vaudeville comedians. He peered into camera booths, climbed up to the wings, went to the monitor room, came back and stood looking at the proceedings from a corner of the great gloomy auditorium.

At last he gave Sam Warner his verdict.

"It's the lights," he said.

"The lights!" ejaculated Sam.

"Yep. Those 'hard arcs.' The microphone picks up their 'sizzle.' But worse than that, they give off radio waves that get through the shielding!"

Murphy was right.

An electric arc gives off a radio wave. Indeed, before vacuum tubes were perfected, arcs were used as the source of all powerful radio signals. Not only do they give off a strong fundamental radio wave, but they emit "harmonics" and "parasites" as well. They cut a great wide swath through the ether. Used right on top of the recording apparatus, as it were, their electric crackle penetrated and was recorded.

Furthermore, although work had been done to make them operate more quietly, the use of a number of them made a hissing sound that, while not noticeable to those who were so used to them, was recorded.

"But," protested Sam, "what are we going to do? Arcs are the only things that give light strong enough to make movies by. Even using them, we can't get enough light in this big barn of a place. Our 'shorts' are poorly lighted compared to ordinary film."

"Do!" said Murphy. "I tell you what we're going to do: we're going to see if we can't make a new lighting system, using incandescent lamps instead of arcs. Incandescents would be all right. I'll bet it can be done."

And thus Murphy embarked on an experiment that was to revolutionize the lighting of the movie world.

By midwinter the limitations of the Manhattan were acting as a drag on the progress of the new medium. For apart from its general unsuitability for recording of sound, and the difficulty of lighting and photographing moving pictures in such a building, it was impossible as a plant for the production of a cinema product.

The manufacture of movies is a business; it runs almost along "factory" lines. It involves shops, laboratories for film, power plants, "property" departments, wardrobe departments, stages. It has as employees actors, technicians, carpenters, electricians, cameramen, scenarists, title writers, production engineers; a host of specialized professions.

The first operative numbers had been made with

regular opera scenery, leased from the warehouses that supplied the Metropolitan. According to all movie standards, it was crude and without illusion. It got by because the audience's attention was concentrated on the singer.

Now as it came to filming vaudeville and things of that nature, it was necessary to construct "sets," more in the movie manner. They had to be built over in Flatbush, and carted through the heaviest traffic in Brooklyn and Manhattan, to the opera house.

Since four "shorts" were being made every week, this was a difficult and expensive proposition. It involved the hiring of many men just for scene construction and carting. It added greatly to the overhead of production.

Everything about the Manhattan added to the overhead of production. The rent was high; the building was not suitable. The sole argument in its favor was its proximity to musical and operatic talent. Yet it was now becoming evident that Vitaphone would not draw so heavily upon such talent in the future.

Even beyond this, the success of the "short" subjects made it seem desirable to incorporate

some Vitaphone singing into regular movies, to synchronize the song right in with the scoring. This would involve recording on sets that would work into the picture; possibly on the same sets used elsewhere in the picture. While those sets might be duplicated, it seemed foolish to go to that labor and difficulty when the two activities, making of Vitaphone and making of pictures, might be concentrated in the same plant.

What was needed was a new studio, there was no doubt about that.

One might be built in the Vitagraph plant at Flatbush that would be close to the vaudeville and operatic centers. But it still did not solve the Vitaphoning of regular Warner productions.

No, the only place to build the new studio would be in Hollywood, on the same lot with all the other Warner activity. It would be cheaper to send particular opera stars or vaudeville headliners overland, to pay all their expenses, than it would to maintain a studio in the East for no other purpose than recording them at that stage of the game.

But it was not contemplated that many would have to be sent out from New York. Los Angeles

was an important center on the Orpheum vaudeville circuit, which booked the same artists as did its eastern cousin, Keith. There would be plenty of vaudeville talent in the west.

CHAPTER XIII

PRODUCTION AT LAST

STAGE THREE, as the new Talking Picture studio on the Warner lot in Hollywood was officially designated, looked a good deal like a barn from the outside. Today—1929—it is soon to come down and to be replaced by a new one, for such has been the march of progress. When built it was a square, uncompromising looking building, made of wood; not overly large, in fact small compared to those that have succeeded it, with blank walls unbroken except for great double doors that can be slid back to admit the ingress and egress of “sets” and “props.”

And yet, for all its plain severity, it was a scientific marvel of its day. It was the first talking picture studio in the world; the first of what has since become an avalanche of talking picture studios. The thought of months had gone into its making. Within it were learned things that altered the whole trend of talking pictures.

Within it were born the crucial improvements that made Talkies a dramatic medium and a sweeping success rather than a novelty doomed to failure.

The building was soundproofed; its walls were double, the space between filled with a special insulating material. It was well anchored to earth; its floors were solid. Thought had been given to its acoustics, to its qualities of resonance; its echoes had been scientifically considered. It had all the specific fittings of the movie studio. For the first time lighting and scenic work could be carried out with ease, instead of in the makeshift manner of the Manhattan. And in addition, it had talking-picture-making innovations.

No longer would the monitor men be cut off from the scene of activities by six long flights of stairs. A "mixing booth" or monitor room had been built about 15 feet up, sticking out of the wall like a pilot house. It had glass sides through which the "mixer" could view everything that was going on.

Another feature of the studio was the "play-back" room. It was just a bare room with two rows of ordinary theatre seats in the back of it

and a big loud speaker up near the ceiling in one corner. This loud speaker was wired through the mixer to the recording room and the recording apparatus. Through this system, any "wax" could be played back as soon as it was made, just as in the manufacture of phonograph records. An extra wax was usually made for this purpose, as playing back ruined it as a "master."

The actors and director, then, could go to the play-back room as soon as they had finished their work, and hear the "sounds" they had just recorded. This was invaluable as an aid to better recording, as an actor could tell just how his voice sounded, where he should speak louder, etc.

Another tremendous step forward was the perfection of the camera booth. The old ones with their felt masks around the front opening, designed to keep the sound in, had been very limited. It was impossible to have to use cameras that could only shoot in one direction and that straight ahead.

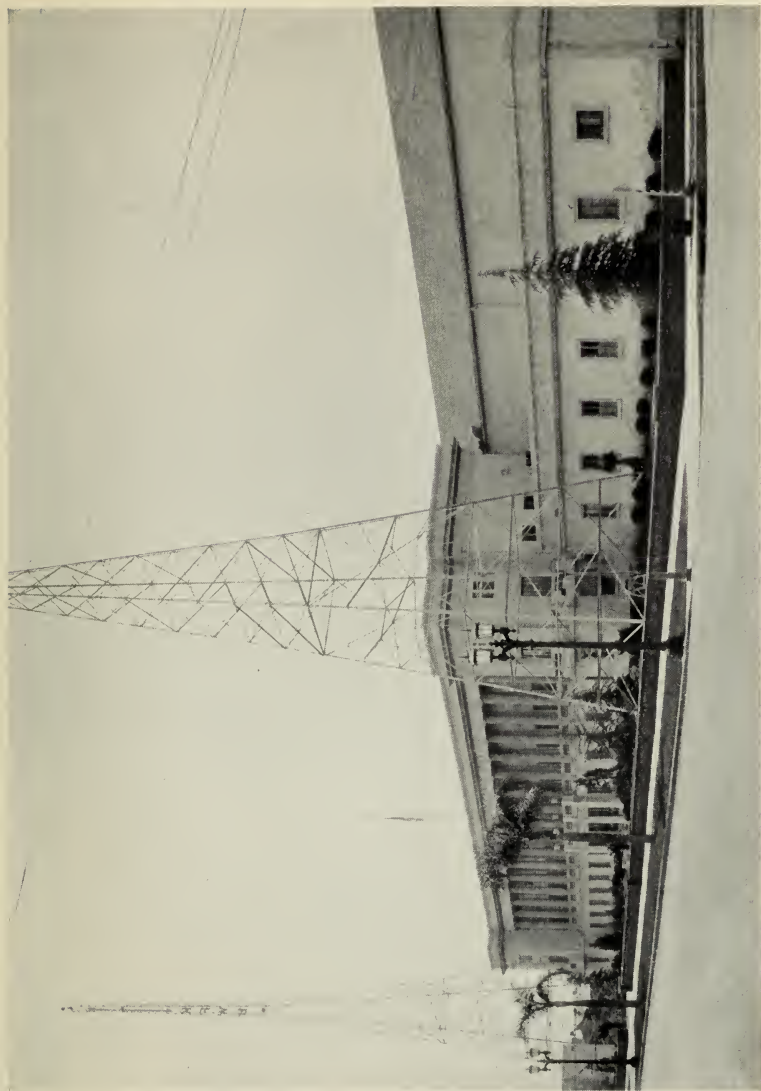
Now special optical glass was secured from abroad, sheets about three feet square, ground to perfect parallel and made of the same sort of glass that lenses are made of. This glass would let light rays through without refracting them.

New booths were made with this glass fitted into the front of them. The camera shot through glass; but it could be "swung" to follow action, regaining almost all of its freedom.

Many Talkie axioms were now established: movie studios have to be soundproof. Talking movie recording apparatus has to be radio and vibration proof. The studio has to have insulated walls. The recording apparatus has to have anti-electrical walls.

A selected group of technicians had been sent from the east to install the equipment. The intermingling of these men with the professional world of movie makers was a fortunate circumstance. The two groups stimulated each other. Out of their union innovation after innovation was born; not limited to laboratory or engineering¹ things, but destined to improve the usefulness of the talking picture for the making of drama and entertainment.

This tight thing of electricity and wax records, microphones and vacuum tubes was about to be made flexible. It was to give and stretch and acquire new powers in response to the demands put upon it by people who didn't know the word "can't."



Front view of Warner Bros. Studio, Hollywood

For the movie world is peculiar in that respect. What it wants is an effect, a result. It is most unconcerned with how that result is gotten. If it can't be had one way, men will twist and turn and dicker around until they have found a makeshift. If it can't be had legitimately, they will find a way to "fake" it. But they will get the result.

This spirit came to permeate the technicians and electricians engaged on sound recording. It was responsible for a year of startling things.

Talkies were now on what movie people call a "production basis." The making of a one reel "short" was put through just as though it were a ten reel feature. It involved production orders to the designers to design sets; to the shops for their construction; to the property department for their accessories; to the electrical department to light them; to the head camera man to furnish camera-men and cameras.

The Vitaphone Corporation had erected offices on the Warner lot. Though it used the shops and other features of Warner Bros., Inc., it had its own production department, its own scenarists, directors, etc. Their work paralleled that of the

Warner production department, but was concerned only with the making of Talkies.

If a Warner Bros.' picture was to be scored, the order for that work came to the Vitaphone Corporation from Warner Bros. Vitaphone took a print of the picture, and manufactured the synchronized records containing the score.

In marketing this picture to the trade, Warner Bros.' sales organization sold the film; Vitaphone salesmen, working in conjunction with them, marketed the accompaniment. "Shorts" were sold by the Vitaphone organization. The two companies maintained separate physical identities, although linked in the spirit.

The problem, as always, was a dual one of increasing the number of theatres equipped with reproducing apparatus, and providing programs for those that did have it.

This number had been brought to about 100 in rapid order after the initial Vitaphone showing, and in all but six of them the Vitaphone had been extremely popular. Six of them had turned in their apparatus and gone back to silent film, disgruntled. Some twenty-five of them had made approximately as much money as they might have

expected to make without the innovation. The balance, sixty-five odd theatres, had not only made money fast, but many of them had made fortunes.

The difficulty had not, in truth, been one of persuading theatre owners that it was a good thing; it had been one of financing sale to them, one of shortage of capital.

Now there was a surge of hope that many theatres would be equipped rapidly. It was felt that there was unlimited capital for financing installations behind Western and the Products Company. Moreover, although the fact was rather bitter to contemplate, the cost of theatre installations had been cut exactly in half the day after Products had taken over the marketing of the device.

At any rate, and whatever the condition was between Warner and Western, it was always Warner's interest to get as many theatres equipped as rapidly as possible, and it set about doing its share to bring this condition to pass.

Since the beginning of the Hollywood studio Warner had been making four "shorts" every week. It had had to make these so that there

would be material for theatres to draw on for programs. Those theatres already equipped would have had to shut their doors had they not been able to get shows.

Warner had announced that its entire 1927 output of silent film would be provided with a synchronized Vitaphone accompaniment. Thus, apart from "shorts," theatres were assured of a constant supply of program and feature pictures.

Now it was time to step up the quality of both shorts and feature film with sound, as a way to attract new theatres to the apparatus. Money making pictures would be the best argument to that end.

These were the lessons they had learned about "shorts": the first ones had been too long. They went over better if their running time was about eight minutes instead of ten or eleven. The first ones, although they had been excellent for their purpose, had been too high-brow. They were over the audience's heads, and bored them. The producers must literally get into the vaudeville game if they were to continue shorts as sensational hits.

The movie world had contacts with the world of engineering. It must now get into intimate



Bryan Foy

touch with the current world of vaudeville, a different world from movies, albeit part of the same world of entertainment.

There was a man in Hollywood who knew both of them. This was Bryan Foy who was twenty-nine years old. Bryan had spent most of those years touring with his father, Eddie Foy, and his six brothers and sisters (four boys and two girls). The seven children were known as the Seven Little Foyes. Bryan knew vaudeville inside and out. He knew every act of any moment in the country, knew how it went over, knew what its people were like. He was a good actor himself; quick witted, with the comic streak of his dad; rather good looking, tall, aquiline features, dark hair, poised.

Eddie Foy was off the stage, now, and the old act was broken up. Six of the Foyes were on the road together; Bryan was in Hollywood, assailing the movie world from the directorial angle. And he had the qualities needed in a director. It had been Bryan who handled the details of the Foy act during the last few years. He had that streak of "boss" that was needed.

Bryan had learned a lot about movie making.

And he was the ideal man for the "shorts" job. He was soon made director for Vitaphone. He was also charged with booking and casting the Vitaphone acts.

Colonel Nugent Slaughter, a man with a long background at Western Electric and who had been in Army radio during the war, was brought out from New York to be chief recording engineer. A. M. "Doc" Salomon, a Warner technician, a hard-boiled little fighter who didn't know the word quit was detailed as technician on the set. George Grove, a quiet little Englishman who had been working with Vitaphone so long, handled the "mixing." The men in charge of the recording apparatus itself came from Western and from the Victor Phonograph Company.

Both in equipment and in men, Vitaphone was far advanced over the Manhattan.

CHAPTER XIV

JOLSON TAKES THE LEAP

Now there came a technical "accident" that was not entirely an accident but that altered the entire future of talking pictures.

One of the first pictures scored in Hollywood was "*Old San Francisco*," a silent film already completed, featuring Dolores Costello. An excellent orchestra had been assembled, composed of musicians from the Los Angeles Philharmonic Orchestra, and under the improved conditions of the new studio, an exceptionally perfect recording had been made of the score. This orchestra of ninety men cost, by the way, nine hundred dollars an hour. The last reel in particular, the climax of the picture, was well recorded.

Now came word from the east that the censors had objected to a brief part of that last reel and ordered it cut out. This of course would destroy the synchronism of the Vitaphoning, as any cut in the film destroys it. It is for this reason that

theatres using Vitaphone today are provided with sections of blank film. If, owing to a break, it is necessary for them to cut any film out of a reel, they must replace it with exactly the same number frames of blank. Although it was as easy as snipping a pair of scissors to cut the piece out of the film, it was impossible to cut it out of the wax record.

It looked as if it would be necessary to re-time the last reel in its revised form, go over and correct music, reassemble the orchestra, and score it over. This went very much against the grain of the Vitaphone technicians, particularly because of the excellent quality of the recording already made.

They determined to try an experiment which had been forbidden. They determined to attempt to "re-record" the last reel's accompaniment from the record already made.

The engineers had forbidden the recorders to try it. They had said that this re-recording must never be done. But these technicians in Hollywood, who hadn't much use for the words "must not" or "can't," believed that by skillful handling under perfect conditions, they could make a perfect reproduction of that record of the last reel.

They believed, furthermore, that by the skillful use of a switch such as is used in transferring from one record to another in "projection," and by using two records of the last reel in question, *they would be able to re-record the last reel and to cut out that part that they wanted to get rid of.*

Their proposal involved intricate technical jugglery, for not only must they cut out some of the music, but it must be cut out so that the omission did not jar. There was to be no rude break in the sound. In fact, it was so intricate and they seemingly had so little chance of success, that they decided to do it on the quiet, purely as an experiment.

They got the instruments ready, got the necessary records and prints of film and studied the situation. They carried out their re-recording. They failed the first time, and the second, and the third. But their results were good enough to make them believe it could be done. The fourth time results were everything that could be hoped for.

The record had been cut just as the film was—and the synchronism was still perfect!

Moreover, the re-recorded record could not be told from one made directly! Played with them,

after them, there was nothing to mark it. Its quality was just as good. Played after those from which it had been made, its quality was just as good. It retained that perfection that had made them so loathe to throw it away.

The movie men had not expected results half so good. They had merely hoped to get something that would be good enough for that one picture, something that would not be noticed. Now, however, they knew that re-recording, if properly done, was a process that could be used as freely and as often as they wished.

Everything in Hollywood gets a nickname. This re-recording process came almost immediately to be called "duping," a contraction, of course, of "duplicating."

The immediate effect of "duping" was that *Old San Francisco* had a score, and that they no longer need fear censor cuts.

Later on, when it came to censoring dialogue, they came up against a serious proposition because of the interruption to continuity. They could cut out speeches physically, but doing so wrecked the story.

But the new discovery had a much larger effect

than that, and one that involves a story; one that brings Al Jolson actively into the picture.

Vitaphone, remember, had never been used as a dramatic medium. In fact, Warner and Vitaphone publicity offices had orders never to use the term "talking picture." They were, as Harry had initially decided, waiting until the public "asked for it." Vitaphone had, instead, created the word "Sound"—"Sound Accompaniment."

But there had been the "shorts." Theatre men had reported from the first that it was the "short," the thing in which the picture talked, that really gripped the audience. They accepted the pictures with sound accompaniment more or less as a matter of course after the first showing. The "shorts" intrigued them. Pictures that talked were actually growing to be the drawing power of Vitaphone. The talking picture had made its conquest at last.

This statement had come to the Warners so strongly that they had decided to work some "talk" into one of their regular feature pictures. But still they were leery of having any character "speak" although characters had "spoken" in shorts. No, they would work it in more subtly.

They were not afraid of a "singing" picture. Having a character sing would not involve any dialogue; nor would it involve a monologue, as any speech by one person would. If they had had "talk" they would have had to have two or more people talk. One person could sing.

At the time George Jessel was in Hollywood, contracted to do two pictures for them: the first, *Private Izzy Murphy*; the second, his stage hit, the *Jazz Singer*. George Jessel was a young Jewish tragi-comedian of the Jolson type, good voice and all that, who had come up rapidly in the theatre world. *The Jazz Singer*, said to be based on the life of Al Jolson, had been a phenomenal success with Jessel playing the lead.

It was a father and son story. The father was a Jewish cantor and was training the son to follow in his footsteps. Instead of following out these wishes, the son ran away and became a cabaret singer, grew famous. His father had sung cantor parts in a certain synagogue's services for years and years. Now, as the Jewish holidays approached, the father grew sick and knew that he would be unable to fulfill his task. He had always counted, in this pass, on having the son succeed

him. The mother, then, sought out her son, and begged him to fill his father's place; which he did. Dressed in the cantor's elaborate robes, he sang "Kol Nidre" as it had never been sung before. Climax. Finish. Sensation. . . .

Jessel had appeared in one of the first "shorts," and in it had worked in some neat ballyhoo for the *Private Izzy Murphy* picture. He was excellent on the Vitaphone, and knew it.

Now *Private Izzy Murphy* was done. The continuity writers were at work on *The Jazz Singer*. With the discovery of "duping" the Warners decided to incorporate into *The Jazz Singer* a number of songs by the star.

At the time they were paying Jessel fancy money for the picture. They now got into a fine dispute with him over what his singing was worth. Their standpoint was that under his contract he was bound to do the singing; his was that he was only contracted for silent work, and that he would not do the Vitaphone sequences except for much additional cash! It was a deadlock.

At this juncture Jolson was approached. Al Jolson was, of course, a national character, one of the theatre's biggest drawing cards. He was also

a friend of the Warners and had been for many years.

But Al Jolson hated and feared movies. He had had one disastrous experience with them back in his (and their) early days; an experience that had made him swear never to do anything for the films again. He was quite an emotional actor, apart from his excellent and well trained singing voice. D. W. Griffith, the famous director, had recognized this in those early days, and had signed Jolson for a picture. Jolson had been enthusiastic about the project; but it had worked out horribly. He had disliked the silent medium, missed the use of his voice; and had, moreover, become involved in heavy argument with Griffith. Result, the whole thing blew up and Griffith sued Jolson for \$250,000. After that Jolson's dislike of movies was proverbial.

Jolson, like Jessel, had made a Vitaphone "short," one of the first. It had been a much bigger hit than Jessel's. Now the Warners thought of Jolson, and approached him to see whether they could persuade him to do *The Jazz Singer* for them, with Vitaphone sequences. Jolson was lukewarm on the project. It sounded more

like the movies than anything else to him. They persisted. Persuaded. Finally he gave in. With mental reservations—he'd make sure there was no funny stuff this time.

Jessel, to his shocked surprise, was let out.

The silent parts of the picture were soon finished. The concentrated work of making the Vitaphone sequences began. Recording these things is concentrated work. Scenery is set up; the cameras and lights got in; the cast, technicians, and others assembled.

There is a rehearsal—just a running through the thing to time it, etc., to get an idea of the necessary action. The microphones are placed, the director indicating where he would like them, the technicians placing them for him.

There is another rehearsal, maybe two or three, which the mixer in the monitor room listens to via the microphone and recording system. He has a loud speaker up there. These rehearsals enable him to work out the use of his monitoring dials, to know what parts to "ring up," what parts to quiet down. They enable him to report how the "mike" is picking up the sound, whether the artist ought to be closer to it or further away.

When it is all worked out satisfactorily all hands "line up for a take."

The cameramen mark the "starting frames"; those in the "gate" of their camera, by punching them with a punch like a ticket punch. The technicians at the recording apparatus set their waxes, putting the styluses in the proper place for the start. They make anywhere from two to four or five records, so that there will be a choice, and also so that one will be for "play-back" purposes. Playing-back ruins the wax.

The three-phase alternating current that will drive the motors of the cameras and of the recording apparatus is cut in, ready for the switch to be thrown that will start the whole works in synchronism. "Have you got your A.C.?" the cameramen are asked.

There may be from two to six or even more cameras on the set to get the various shots desired. They all work in synchronism with each other and with the record, of course; all being driven by the same A.C. and synchronous motors.

When every one has reported ready, "Quiet" is called for. The Assistant Director yells "No Movement At All!" The head property man



A reception committee for Fannie Brice at Hollywood. Left to right, Jack L. Warner, Darryl Francis Zanuck, Archie Mayo, Fannie Brice, Al Jolson

blows a blast on his whistle, which is repeated outside the building, and all movement within a certain deadline stops. The soundproof doors are closed and locked.

Then, with everything as quiet as the tomb, the word is given—"Turn 'em over."

There is a very faint whirring from inside the camera booths, barely audible. The motors up to speed, the technician on the set makes a gesture indicating "Start the action"—and snaps a switch that turns on a red light at all stations.

Then, in that dead stillness, it is up to the singer to act as though he were in front of a spontaneous theatre audience of several thousand people, to summon up his emotion, his "stuff," and to put his song across.

Most of them suffer the tortures of the damned—most acute stage fright.

Jolson took it very seriously. So did they all. There was nothing light-hearted about it. It was as though millions hung in the balance, as they most certainly did!

The picture was being directed by Alan Crossland. Jack Warner, producing manager, was on the set constantly watching the production end of

it. Sam Warner, vice-president and sales manager, was there, watching the recording and technical end of it and entirely wrapped up in the work, fighting the thing through.

Everybody was there, everybody standing around silently during the takes.

There was an orchestra to one side, out of camera range but having microphones over it at strategic points, just as they were placed for scoring. Once the orchestra started Jolson would be picked up by the music. His nervousness would disappear. He would summon up the emotion needed to "plug" the song. His work was magnificent.

Sometimes the "take" would be ruined: a camera would buckle, or something would go wrong technically. There are a hundred little things that can ruin a take. Instead of being depressed by these things, they worked all the harder.

When the company heard the "play-backs" they became convinced that they were going to have something good.

Jolson became imbued with the spirit of the thing. He began to "ad lib." He is a natural "ad libber." When he is confined to tight lines

his style is cramped. He works best when he can simply let himself go, put his own words into the thought that he is trying to get across—play it naturally, entirely in character.

They had finished all but one of the songs, gotten records that were satisfactory. They were working on a song which he was singing to his mother. The script called for him to summon her to the piano, and then to start singing it for her. All the action up to the start of the song was supposed to take place in the silent part of the film.

They rehearsed, lined up, started the take. And before he sang, Jolson spoke to his "mother" spontaneously. "Come on, Ma," he said. "Listen to this!" She went over to the piano, and he began to sing. The action went ahead.

Sam Warner and Alan Crosland had not expected Jolson to speak. But when they heard it in the play-back, that spontaneous bit sounded good. They decided to leave it in.

That decision made history.

The picture brought Jolson a fortune and heaped new laurels on him.

CHAPTER XV

FIRST ALL-TALKIE STUDIO

By October, 1927, the Warner studio in Hollywood was far nearer the use of the talking picture as a dramatic medium than it had been when the Jazz Singer was shot. During those summer months Bryan Foy's "shorts" had been serving as a laboratory in which the application of the talkie devices to the dramatic problem had gone ahead by leaps and bounds.

Foy had a feeling for the stage, for drama. His gift was much greater than the simple vaudeville act which was normally only a combination of song and foolery, without plot, without sequence.

Even before duping he had been discontented with the type of "short" that had been made in the east. He was unwilling to accept its limitations. It was too rigid, too tight. Somebody came out and sang. There might be a close-up and a

long-shot, but the action was always before one microphone, always in one set.

Even vaudeville actors, holding the stage for a short ten or twelve minutes, used several costumes, sometimes several sets, to put their number over. Variety, the British term for vaudeville, was a good description of it. The "shorts" lacked Variety.

Foy, Doc Salomon, Ed Du Parr and George Grove put their heads together on the problem. They were out on the coast, now, with the resources of the Warner production department behind them. They determined upon a novelty which sounds laughably crude today, but which then was a striking example of the pressure which Amusement—the theatre—was putting on a mechanical medium in its will that its ends be served. They determined to make a "short" in three scenes.

This was before duping. The only way in which to make ten or eleven minutes of consecutive synchronized speech or song was to start putting it in at one end of a record and keep on going until the record was full. That ended it. It could not be carried over to a second record.

Nor could it be made in pieces and patched together. The whole action had to be made at once.

They wanted to make three consecutive scenes, all using the same principals, all using speech and song. They had in mind a number which they wanted to call "French Leave." It involved a pair of soldiers in the front line trenches, some dialogue there, bombardment, etc., and a decision to jump ship and hunt an *estaminet*. Foy and Grove wanted the scene to jump then to the Inn, full of roisterers, and show the arrival of the soldiers with great hilarity, song, etc.; and finally have a grand row with the M. P.'s entrance. Then a jump to scene three—the jail, and the two adventurers incarcerated therein.

As a movie this would have been set and shot in three scenes, three entirely separate bits of action.

Unable to do this, Jack Warner had built a triple set with synchronized cameras focused on each of the three portions of it. He and the others figured the film could be spliced together in synchronism with the continuous sound record.

Action started on the left hand set, the trenches.

When it was finished there the lights were "blackened out," and the actors ducked around behind out of sight; when the lights went on again they were just entering the middle set—the Inn—and it was camera number two's film that was being used. At the end of the Inn scene there was another black out, supposedly brought about as the lamps were kicked over and covered by general yelling and confusion (the first had been "covered" by battle noises). During this second black out, the actors scuttled around into the "jail"! They stayed there for the rest of the number.

It was awkward and clumsy, comical, a palpable makeshift; and yet it was possible. They rehearsed it and found that it could be done.

They made it, to very good effect.

They made several others like it, *The Pullman Porters* among them. This was in May, 1927, immediately after "Stage Three" was completed. Getting the results they wanted involved a lot of "faking." Sometimes the action they demanded took the actors away from the microphones at times when they had lines to speak. There were times when Foy himself spoke those lines, the actor's back being turned to the camera so that

no one would see that his lips were not moving! This was strictly forbidden, but at the time nobody knew about it except the participants. Moreover, it got the results.

But the arrival of duping changed the necessity for all such subterfuges.

Foy decided if Jolson's songs could be worked into the Jazz Singer, why could he not work different scenes together inside the one-reel limit of his pictures?

He was learning a lot, and fast. He had to. His was the raw school of Vitaphone. He was making four shorts a week. There was no time for detailed experiment on any one of them. There was always that next one, just ahead, in which today's lessons could be applied. There was always that new place for the new idea. Nothing in the history of human achievement was just like it. The nearest thing was war!

All sorts of actors passed before Foy, good, bad and indifferent; some quick to adapt themselves to the new medium; some temperamental, nervous; occasionally there would be a bad case of stage fright and forgotten "business." But mostly they were troupers; vaudevillians who had



Major Albert Warner

gone through their stuff so many times that they could do it in the face of hell or high water. They would get up in front of the microphone and "play" to it as though it were an audience of five thousand; and in so doing, would play to and please its audience of many million.

The talking movie was becoming a dramatic medium. Foy, used to the stage where talk was the first tool of the actor, wanted to use his one-reel shorts for talk. He wanted to make brief sketches, or acts.

It was an experiment. They were willing to let him try it. They would try them on the public, mix them in with the regular vaudeville shorts, and see what the public's reaction to them was. They would be a feeler as to the acceptability of full-length talking pictures.

In July, 1927, he made a one-reel comedy, called *The Bookworm*. In August, 1927, he made a one-reel drama called *The Lash*, written by and featuring Hal Crane. It was an act Crane used in legitimate vaudeville. In October, 1927, he made a two-reel drama called *Solomon's Children*.

The real "Talkie" was expanding. . . . This last two-reeler had just been made when word

came for "More Talk." The *Jazz Singer's* premiere had been a sensation. Simultaneously the first of the one-reel talkies was being released to theatres and proving to be a great success. Demand came from them, too, for "more talk." Talk, then, was going to be the order of the day.

There were three of the regular Warner Brothers output then in the making: *The Lion and the Mouse*, *Glorious Betsy*, and *Tenderloin*. Should they be changed to Talkies? This demand for "talk" might be a thing of the moment. It might be purely the novelty. But that was a gamble they had to take. And it wasn't the first gamble. Finally, dialogue sequences were written for all three of those full-length pictures and incorporated into them. The plunge was taken.

Each of these productions and most of the many that followed broke box office records and made history. They were only hybrids, however; part silent and part talkie film. But the public loved them and nobody but Warners were making them.

Stages Three and Four were no longer large enough to handle the amount of Vitaphoning that was being done. The studio construction staff

was put to work on another, Stage Five, larger than either of the first two. Many improvements were incorporated. Progress during those five months since the first studio had been finished, had been astonishing.

At that time there was no other talking picture studio in the world—nor was there to be for nearly a year following!

Warners had been working with Talking Pictures for over two years. Vitaphone was over a year old and had been making talking pictures for the market day in and day out during that time. Over three hundred shorts had been produced. The Jazz Singer had been made. Some thirty pictures had been “scored”; and now dialogue was being worked into the regular Warner Brothers output! Warner was leading their rivals by a long stretch.

Fox had had a license since December, 1926. He was just beginning to equip theatres and had only made a handful of experimental shorts. In fact he was just starting to “score” pictures, having put into action a mobile talkie recording outfit abroad which was moving around Europe making a few subjects. It was more an experi-

ment than anything else. The decision to make the Movietone News was just forming in his mind.

Warners were exactly two years ahead of the field. Not one other concern besides Fox had even turned a finger toward the Talkie!

Frank Murphy's discovery that the hard arc lights were the cause of surface had resulted in some revolutionary innovations in the straight movie world.

Murphy had come back to Hollywood from New York and begun experimenting with incandescent lights. At first he had simply used big incandescent bulbs—1000 watts, 2000, 5000, 10,000—trying different shapes of reflectors, different sizes of lamps, to see what would be the most practical for studio use. It meant an altogether new technique of lighting, for these lamps were much smaller, had far less candle power than the arc. There had to be many more of them, and they had to be much closer to the set.

But quite apart from their freedom from emissions that would cause "surface" they had one enormous advantage over the arc; it was only apparent as they were used in actual photography. They gave a "soft" light; they illumi-

nated without distorting colors. The arc was "blue white"; colors seen under it were not natural, for it did not contain all the colors of the spectrum. The incandescent gave natural light.

Working under it, actors used far less make-up than for the arc. They made up, moreover, in natural colors, instead of the blues, greens, etc., that they used to give effects under the arc. White was white. In the old days, men had worn yellow collars, yellow shirts. These had photographed white. Now they did not need to resort to such subterfuge

Best of all, the cameraman—who had objected strenuously to the new lights when they were first introduced—now began to like them because they made it possible to use Panchromatic Film, film that records colors in their true relative value. They were able to do much better photography.

So that these lights, which it had at first supposed would only be used for Talkies and would be a sort of thing that one had to put up with, began to be adopted for all movie work in the Warner Studio. Murphy having worked out a satisfactory reflector, they were manufactured by a Hollywood company that made lighting equip-

ment for the movies. Soon the arc was obsolete on the Warner lot.

The First Auto, a picture featuring Barney Oldfield, was the first picture to be lighted entirely by incandescent lighting.

The studio electricians (and everybody else inside the studios) with their propensity for nicknames, christened these lamps "Inky's." They might be Inky's or Baby Inky's, according to size. An Inky mounted on wheels was called a "Rifle."

Camera booths were fitted so that Inky's might be mounted on top of them, close to the action. Sets were fitted so that there were places all around the top of them in which Inky's might be located, throwing their flood of light down on the set. A movie set became simply rimmed with lights.

This progressive step was not made any secret. Other movie companies were told of it; were even allowed to come in and see how the lights were used. Within six months all the forward looking studios in Hollywood were using incandescent lighting; within a year *all* the studios were using them and the arc was virtually a thing of the past! Movie lighting had been entirely revolutionized

by this new lamp that had been brought to being by the Talkie!

Today when the head electrician on a set wants the lights turned out he yells "Save em!" The man at the switchboard understands. When he wants them on again he yells "Hit 'em!"

The Head Electrician on the set directs the placing of the lights, working with the Director and the Head Cameraman; the latter having the most important say-so in the matter, since the making of good photographs is his responsibility. The concentration of inkys on the set makes heat hotter than a summer day; if the action is long the actors swelter under it. The concentration of light from them is like an assault, but there are no more "kleig eyes."

Hollywood began to look to their new leaders.

CHAPTER XVI

TRICKS OF THE TRADE

THE Talkie studio, 1929 model, is very large. And it is a very different affair from the pioneer Stage Three. It has always been hard to get inside a Hollywood studio. The interruptions caused by visitors when they were allowed, cost thousands of dollars a year. The visitors were always "lifting" things for souvenirs. They even cut pieces out of the sets! So few people have seen the latest model.

It is ten times as hard to get inside a talking picture studio for two reasons: First, rivalry between companies makes many of the finer points of recording, etc., dead secrets. Second, the visitor might cough or do something at a crucial moment, and spoil the "take."

Once past the gate, the visitor needs a guide. The "lot" is full of studio cops; and they aren't the slapstick kind, either. When they come up and ask one his business, they want to know.

You get your guide, then, on your first visit. You go through the "streets" of the lot, past great mysterious buildings that are hives of swarming industry. On your left is a great film laboratory, with dark rooms in which miles of film are being passed through fixing and developing baths on large, slowly-turning reels. The Talkies, you learn, with their "takes" that last ten minutes on occasion, have revolutionized film laboratory practice in many ways, because they have necessitated handling single strips of film a fifth of a mile long.

The laboratory has doors marked "Projection Room No. 1," "Projection Room No. 2," etc. In those projection rooms the "rushes" are shown every night, finished prints of the day's "shooting." They are looked at by the director and the film editor. A film editor is assigned to each picture; he is in charge of cutting, assembling, etc. Members of the production department, and sometimes actors and cameramen are also present at the showing of these "rushes."

At one end of the building is the Camera Department, in which the hundreds of movie cameras are stored and serviced. Here they are

issued out to the cameramen, who carry them to the set on which they have been assigned to work; or, if they are going on location, load them into the studio cars which are kept in a large garage inside the lot.

Across the street are huge shops filled with workmen fashioning sets out of every sort of plastic material. They may be called on for absolutely anything from the interior of a modern mansion to a caveman's hutch. Other buildings are full of "properties," furnishings for the sets. Consider the furnishing of a simple hotel room, for instance. Besides the furniture, the prop man must dig up the right kind of a wall telephone, a notice for the inside of the door; innumerable small articles.

There are other buildings. There is a power house with humming generators. There are dressing rooms for the stars, and for the extras. There are office buildings for the production, scenario and technical departments. There is a huge gaping hole in the ground where a new building is going up. It will house the new recording apparatus and record-pressing plant.

Off in one corner of the "Lot" there is another



Dolores Costello

kind of "street," called just that: "The Street." It is lined with a great variety of buildings that are only "fronts," though they look solid enough. It is just a set; and there's enough variation to the buildings that make it up, to permit it serving in many pictures without changing it—although it's always being changed, and little things added for one picture or another.

All around you are the stages.

And people. Busy people, hurrying around. Workmen, cameramen, electricians, actors in costume. They stop and talk to each other for a moment, a French general and a lumberjack, on their way to different sets. An African dancing girl comes up; then three in costumes of colonial days. You crowd to the wall as a Rolls Royce goes down the narrow alley and in it you see, perhaps, Dolores Costello. And Monte Blue strides past in breeches and laced boots. . . .

Stage Six. Inside the great double doors you catch a glimpse of greenery, and the flare of bright lights. It's a tall, stucco-walled building, square, white, with perfectly blank sides except where they are broken by the one entrance, and a smaller door beside it. Its roof is flat, but slopes to meet

the walls near its outer edges, somewhat like a French roof.

Inside: "No Smoking Allowed On This Stage." "No One Allowed Inside This Building Except On Business." Everybody is smoking. Color: the green is a garden, a wide, lovely Moorish garden with a fountain playing in its center. To one side a wall with a gate that looks out on The Sahara. And back of it a rich, intricately decorated building, a palace, steps leading up to it. There is color everywhere, the palace is decorated with arabesque figures, full of color.

You had expected a little. But since movies are always in black and white, you thought their sets would be black and white, too. Now you know what it would mean to have real colored pictures. All this has the feeling of reality, making it seem most unreal.

The green grass is artificial. The flagstones of the court are artificial. The fountain is artificial. You walk across them, through the doorway, and you are in the interior of the palace, in a great, lavishly furnished room, a very long room. On your left it gives onto a terrace that looks out over the desert. On your right it ends in nothing-

ness. It has no end. What you see is the blank wall of the studio!

None of it has any ceiling. It goes up to a point well above camera range and stops. When you look up you see that the overhead is a mass of "cat-walks," some ten feet below the roof of the building. There are men on them, electricians and "grips." The walks correspond to the flies of a theatre; they are used constantly, for handling and suspending scenery, for lights, for everything that goes on overhead. The microphones are hung from up there; technicians lower them down at exactly the spot called for.

The building is full of what seems like the wildest confusion; but which boils down after awhile to the same sort of orderly disorder that there is in a ship when she gets underway. Half a dozen camera booths are being wheeled into place at the open end of the "room" inside the palace. A gang is rearranging the furniture. One chap is sweeping the floor. Electricians are pushing big incandescent lamps on wheels (rifles) around, passing other "inkys" up to the tops of camera booths where they are set in a socket and trained on the set.

Around the tops of those unceiled walls, there is one continuous row of lights, Inkys about three feet in diameter, all pointing down.

"Hit everything!" yells a raucous voice and suddenly all these lamps become intensely incandescent, flooding the set with light and making the colors leap out with startling brilliance.

The light is "hot." It is more than warm underneath.

"Save 'em!"

They die again. There is only the light from the lamps far overhead, the regular lamps, and that which streams in the door. The stage is very large, some two hundred feet square; it's like an armory. Its ceiling is about thirty feet high. And it's soundproof. Its hollow walls are filled with an insulating material that shuts off the outside world and its noises as completely as if the building were whisked fifty miles into the air.

Its floor has a special resonance. If left uncovered it will give just the proper ring to footsteps. If damped with a carpet, they won't be heard.

Old castles had their watch towers. The talking picture studio has a watch tower, too; an electrical one. It is a glass-walled monitor room,

eight-sided, hung up under the ceiling in the center of the building, so that it commands a view of every corner. The microphone wiring leads to it, to the "mixing" panels inside it, and from them it leads to the building that houses the recording apparatus. This building is just around the corner, long and low, one cell of a room beside another. It is the holy of holies, the mysterious place in which that triumph is achieved which is beyond movie making, beyond talkie making. It is solely in the province of the scientist, the snatching of a human voice from an electric current and freezing it in wax!

Panels stand on one side of each room. There are amplifiers, looking like the apparatus of a radio station, with their vacuum tubes, instruments, dials, red and green lights.

Across from them stands a delicate machine, solidly mounted and driven by a motor. It has a turntable. Above the table hangs the stylus that cuts the groove. The stylus is moved across the wax by a long, beautifully machined worm-shaft. There is a little tube beside the stylus, a suction tube, that vacuums away every particle of wax cut from the record.

The master-wax is wax-yellow; sixteen inches across and more than an inch thick. Its top surface is scientifically smooth and flat, polished to a sheen. The stylus rests on it, ready to start cutting the mysterious groove that imprisons vibrations.

That wax will be placed in a box that holds it firmly and cunningly so that nothing can touch its surface, and sent to where the pressing dies are to be made. It will be covered, there, with a graphite mixture that is no more than a thin film; and electro-copper-plated in a long intricate process. The plating will be the master die. From it the records will be pressed.

The original wax will then be smoothed off, the grooves shaved from it, the surface polished. It will be sent back and used over again.

Even when plowing its record it isn't used up. Those shavings, and the shavings vacuumed away from the stylus, can be purified and melted and put together into a new wax.

You wonder, as you look at it, how many voices have been caught in that soft material and made immortal.

Talkie makers do that; they catch sights and

sounds in soft material and make them immortal.

All those sets that have the look of such solidity and are solid enough to work on and with, are made of temporary materials. When they are finished with, they are destroyed. Only the raw materials are saved and used over.

There are marble pillars. Once they were sheets of paper laid over wood shapes and made to look like marble. The grain in them is beautiful. The method used is a cunning one. Prop men took a long trough of water, big enough to hold the paper. The paper went into the bottom of it, under water. On its surface they streaked oil paint in shapes and colors that were fitting for awhile. It floated there. Then, from each end, the workers lifted the paper. The paint rested on it and streaked and ran in just the proper way; the way peculiar to the markings of marble! That made marble.

In curious ways like that all those transient things which become so permanent in film, are made.

The desert that you saw stretched away on the other side of the doorway had just the right sand-

ripples in it. It seemed that a man must have been a great artist to paint them and get the curve of the dunes so well; it looked so exactly like sand. On inspection it proved to be a photograph some twenty feet long and six or eight feet high. A photograph of a real desert, and a fine one. That was why the shadows had just the right shape on each tiny dappled ridge. And now the photograph would be photographed, as the background of the picture. Since nature couldn't be reproduced, her image was used.

Actors in costume begin to come onto the stage. A quiet man whom you had taken for a supervising engineer proves to be a famous director. They are going to start shooting. . . .

CHAPTER XVII

THE NEW GAME

THE rush of activity continues. It is all focused on one moment: the moment when "shooting" starts.

Everybody knows that the "shot" is to be; that's in the script, which is like a movie script, except that it has the dialogue added to it. The daily schedule tells what scenes are to be made on which days. Work must be kept up to schedule.

The director has told the head cameraman just where in the set he is going to locate the action. A substantial part of all this activity is the camera gang. They are bringing in cameras and setting them up in the booths, focusing them, adjusting them. A young man comes in with a hand-truck full of camera magazines from the laboratory, loaded with fresh film. Cameramen get magazines from the truck.

The head cameraman has told the head elec-

trician what he wants in the way of lights. The electricians are still concentrating the battery of illumination that is going to make it as light as day.

Actors have gone over their lines—the director hopes they have—and are on the set in costume. Two of them running through their parts together. Others sitting in a group, in those canvas chairs peculiar to moviedom; with their names burnt into the arms of the chairs.

Now the Assistant Director, who is like the Executive Officer of a ship, rounds up the cast onto the set where the Chief Director is waiting for them. There is a confab in which he tells them what the action is to be; how he wants it carried out; how he thinks it should be done. If the cast has any suggestions to offer, it is then they do it. Suddenly the group breaks up and are going through the scene right in the middle of all that unceasing muddle, the director standing to one side.

The head Technician is by him. This Technician on the set is in charge of rigging microphones and coordinating the recording gang. With him, too, is the "mixer," who has come down out of the monitor booth.

Now the microphones are to be placed, still with the hubbub going on. At every spot where dialogue is to take place between any of the actors, there must be a microphone concealed to catch their words. The microphones—condenser type—are on the ends of long rod-like holders, at the other ends of which are small brown boxes. They do not look anything like the familiar radio microphones. That kind was tried at first, but found impracticable.

The technician stands where the microphone is to be placed. Overhead from the catwalk a man lowers away a supporting cable, an electric lead. The microphone-box is hung from the cable by a three-chain suspension. The electric wire is plugged in, and the whole is hoisted away until the microphone is not far above the actor's head—just out of sight of the camera.

If it can't be located out of sight of the camera, all sorts of dodges are resorted to to keep it from being evident. There are special microphones in the form of telephones. If the scene is modern and the speaker is seated at a table, one of these can often be substituted. Sometimes substitute microphones are concealed behind other objects

on a table, behind flower-pots, bowls, etc. Sometimes they are boldly hung as before, but covered with a tassel, or the limb of a tree, or a trailing vine.

Sometimes they are hung in plain sight, and masked. Masks are made of various shapes, and in many different colors. The cameraman helps pick one that will blend perfectly with the background. The work is clipped to the microphone; and it hangs in plain sight, yet so disguised that not one person in a thousand will notice.

On one occasion the microphone was so placed that a bright chintz window-curtain lay behind it. No ordinary mask would do. Some of the same material as that of the curtain was gotten and draped over the sensitive little disk.

By the time the microphones are placed, the electricians are pretty well set on the lighting. The lights come on and stay on.

The microphones are energized. And a second rehearsal is gone through; partly to work the actors into it, partly so that the monitor man can see if the voices come through properly from each of the microphones.

Action and the speeches are very carefully

worked out. Speeches must be made in exactly the right place, otherwise they won't record properly. Nor have actors any great freedom of movement while speaking. To move the head changes the tone of the recorded voice, to a certain extent.

The thing may be rehearsed once; it may be rehearsed half a dozen times. There are many things that can hold it up: mikes not right; lines forgotten; "business" to be worked out.

Gradually things get quieter and quieter. It is while the actors are in place for their scenes that the cameramen get their exact focuses. When everything is ready the word is passed "Line up for a take."

The script girl, who has been watching things, has timed the rehearsal. She tells the cameramen how many minutes and seconds the scene will run, so that they know how much film to load.

They load their cameras, punching the "starting" frame and also punching into the film the number of the scene, number of take, and name of cameraman so that the film of the different instruments can be identified after it is developed.

Meanwhile, in the recording room, the stylus is being set at the starting point of a fresh wax. . . .

Three phase alternating current is cut in on the lines that energize the driving motors of the cameras and recording apparatus.

"Have you got your A.C.?" from the Head Technician.

Cameramen report O.K.

"Are we ready to go?"

Reports come in to the technician from cameramen, mixer, and recorder operators.

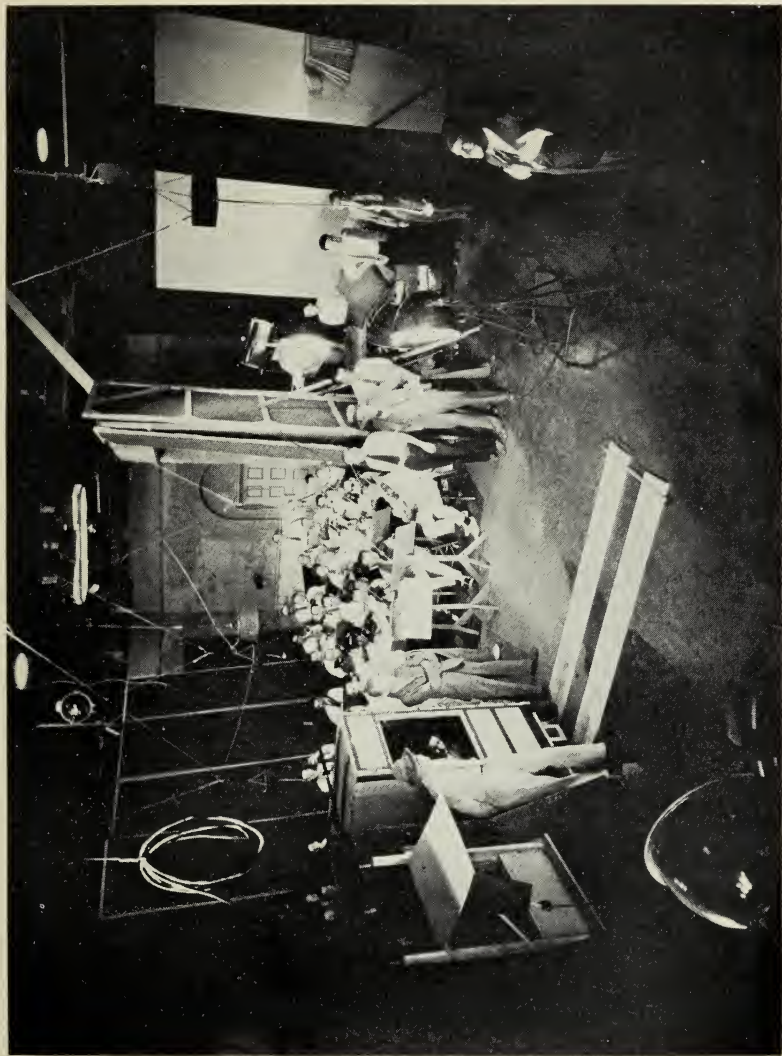
"Lock 'em up!"

The camera booth doors are closed and locked.

The huge studio door is slid shut and locked. The smaller door beside it is locked, too.

"*Quiet!*" This in loud tones from the Assistant Director.

There is a shrill blast of a whistle, hung by a lanyard around the property man's neck. A prop boy who has been giving the set a last sweeping, tiptoes off. The whistle blast is repeated outside the building and all movement stops there, too. (The whistle is blown just as the doors are being closed.)



Making "The Singing Fool"

The Director is on his chair just in front of the cameras. In a circle on the fringe of things, looking on, is a small crowd. There are always thirty or forty looking on. Grips, props, electricians, actors not in the scene, the script girl (she sits near the director), actress' maids, the film editor, visitors from other parts of the studio. The number is even larger if it is a big scene; or if big actors are working. They tense now, and hush. There is a last cough, a last creak of a chair. . . .

The actors, having given their noses a last hasty powdering (both sexes do it), are waiting in the places for their entrance, or under one of the microphones ready to begin. . . .

A dead hush descends on the whole place. There isn't a sound.

The Director takes a last look around. Everything is set. He nods to the technician.

"Turn 'em over," says the Technician by telephone, to the mixer.

A moment's pause. Then, barely discernible, there is a curious little whirring noise from inside the booths. The cameras are turning. The silence grows tenser. A moment more, while they get up speed. The technician is listening for the

report from above that they are O. K. One hand is poised. When it drops the action will begin. The other is on a switch that turns on red lights at all stations to indicate that recording is actually on.

His hand drops. Click, goes the switch.

There are quick footsteps on the set. The action is on:

"The Red Shadow! We've trapped him! He won't get away this time!" comes Ed Martindel's voice in resonant tones, breaking the silence.

And so through the scene.

Are the scenes always perfect? They are not. Often an actor muffs a line; forgets it; misses a cue; or sticks in the wrong words. In a certain courtroom scene, for instance, it had been decided that the proper word for the "judge" to use in a certain speech that dealt with lawyers, was "attorney." The "judge" understood: "attorney" it would be. But every time they reached that spot, he said "lawyer," even though his mind was concentrated on saying "attorney!" And then they'd have to take it over.

It's a fairly hard job to get a perfect "take." The Director almost always makes three at least

before he's satisfied. Sometimes he goes as high as nine.

If it's been one that they think is good enough, everybody concerned troops over to the "play-back" room as soon as the cameras have stopped turning and the doors have been flung open. Two blasts of the whistle have been blown outside to let people know that they can move again.

Out in the play-back room the actors hear their voices come back at them. It's uncanny, to hear it all repeated so soon. And it's invaluable to the actors. They recognize most of their mistakes first-hand and immediately; faults of diction, words slurred, all that sort of thing.

It's surprising, for example, when an American actor whose voice isn't intensively trained tries to say: "*We've got him,*" how easy it is for him to say instead, "*We gottim.*"

When they get excited and really into their parts they drop into "normal" speech like that very easily. That's one of the movie-trained actors' drawbacks.

One take heard on the played-back was perfect except for two consecutive short speeches by the heroine. They were so low that the words could

barely be distinguished. It had to be made over.

It takes a lot of time to make them over. Lining up is a slow process; twenty minutes or so. The delay is mostly because of the fact that every bit of film, every record, has to be marked so that it can be identified.

A take lasts, say, two to four minutes. There are probably on the average, 160 takes of the 40-odd talking scenes in the whole production. Each of them employs four to six or more cameras. And three records are made of each of them (so that the best can be selected).

The records of different "takes" of the same scene are not interchangeable. They would not synchronize. So all those records, all those different films, have to be marked with the scene and take number in such a way that they can all be kept straight.

It's not as simple as it looks.

It consumes all day to get two or three scenes made. Just that much is a hard day's work.

Up in the mixer booth, the monitor booth, the mixer has listened to the whole thing while it was made, his hands on the amplifying dials. He has

switched from one microphone to another as necessary; he has brought weak voices up; quieted loud ones down; kept the strength of the sound as it should be.

His work is very important. It requires long training and considerable judgment. It would be easy if he had to make all sounds the same loudness. But some are supposed to be louder than is worked out during rehearsals, which he follows intensively. He has a cue sheet, telling him just where the lines are to be spoken, and what their inflection and loudness is.

If two microphones, or more, are being used simultaneously, if two people are speaking to each other across a room, or if it's a singer with an orchestra (which has four or five microphones over it) he has to mix them all together with the proper loudness. Hence the name "Mixer."

He started out by being a technical man. But his work has such elements of judgment in it, musical and dramatic judgment, that he is becoming a part of the producing organization. So are all other technicians.

That's the thing about making any kind of dramatic entertainment. Everybody has to know

what's what. The technical men can't just be working there. They have to be in it, the spirit of the story. They have to *feel* it. Only if all these diverse elements click together will the results be convincing.

So in the Talkies, even the electricians have to understand the dramatic end of it. Likewise the actors have to understand the elements of the mechanical end of it. Every one of the whole company has to know the other fellow's job enough to understand what it's about.

When the take is over this unity isn't so vital. Then they're all doing their separate jobs. The property men concentrate on the props; the carpenters hammer away on the sets; the cameramen pick at their cameras; the technicians adjust their technical mechanisms; the Director scrutinizes the whole thing.

The actors, between takes, are sitting or standing around the set, sometimes talking together, sometimes working over their parts.

Right now, in this time of flux, every one of them thinks that he may be on the highway to smashing success, no matter how lowly the part he may be playing in the picture he's in. The

average Talkie actor thinks he has a splendid voice—the best in Hollywood. He trains it, treasures it; is constantly breaking into dramatic lines; and is careful to use the resonant chest tones. And maybe you don't think he guards it. He'd sooner lose a leg than catch a cold. He takes good care not to strain it. If he's made about nine takes during a day, he thinks his voice is all tired out.

There's a little pastile on the market called the Zymole Trochee; it's been sold for years; good for the throat and all that sort of thing. The drug store on the corner of Sunset Boulevard nearest the Warner Studio used to sell about ten boxes of them a year. We'll say the salubrious climate kept people from needing them. When the talkie boom started the word went around among the actors and actresses that Zymole Trochees were just the thing to keep your voice in shape. That druggist sells about a hundred boxes of them a day, now. He can't keep them in stock!

We've been on Stage Six all day. The things we've seen have been going on five other huge stages. A seventh is building. They'll be going on almost all of the night, many companies work-

ing at once. The whole place going full blast. As soon as a stage is vacated, new companies come trooping in.

Over on Stage Three Bryan Foy is making shorts of a famous vaudeville team. He is watching their act, which he has told them to cut to seven minutes. The Vaudevillians don't mind the microphone; they've done their stuff so often that nothing makes any difference to them. There's only one thing they like, and that's to be told it's good. It doesn't do any good to tell them the first time, and then let it go at that. They want to be told after every rehearsal; and after every take; and again at the end for good measure.

Bryan knows them all. He's good at handling them.

On Stage Four little Davey Lee is working with Rin Tin Tin. A big crowd is watching them.

Over on Stage Two all the Underworld is concentrated in a big dance hall. Conrad Nagel is haranguing them; and not one of them suspects that he is really a detective—except possibly Myrna Loy, who's whispering to William Russell.

Stage Five is full of musicians. The sweet strains of a great symphony come swelling out of



Davey Lee

it as they rehearse. In a few minutes they'll be scoring a picture that was finished and cut last week. The score will be duped onto the records.

And there's no five o'clock whistle.

Fascinated, we stay on until long after dark.

CHAPTER XVIII

IN THE THEATRE

AFTER the Talkie is made and duplicated its distribution begins. In the theatre it enters the operating booth. This booth is usually located behind the last row in the balcony. It's the place that has always looked like four or five square holes in the back-wall to you, with beams of light coming out and over your head to the screen.

The operating booth runs like a delicate machine nowadays. For the Talkie has come into the theatre, too, and changed things in it as well as in Hollywood. Time was when the operator fed two reels into his machine, snapped it on, and sat and read a book for twenty minutes until it was time to switch to the next one. Operating was a boresome job, those days. It's different, now.

Back of each machine, below the box that contains the arc-light, and driven by the same motor that drives the projector machinery, is a turn-

table with a glossy black record on it. It's like a large edition of a phonograph record, except that it plays from the center out instead of from the outside in, as is the case of a phonograph. It's got an electrical pick-up that leads to an amplifying panel, from which the voice currents go to loud speakers behind the screen.

A Talkie is in progress. The left-hand machine, No. 1, is in operation. Number 2, beside it is being made ready. Film is being threaded through it. Each machine has an operator, and besides them there is a third, a Chief Operator. The Chief is putting the new record in place, just as you would on your own victrola, except that he puts a weight on it to keep it from turning on the green cloth and getting out of synchronism. The other operators get number two ready and then stand by.

No. 1 operator is looking down at the screen. Beside him at the port-hole is a cue-sheet. As a certain scene comes into view, he reaches overhead to a big dial-switch and turns it up a point, making the sound a little louder. Those in the room hear the change from a loud speaker up in one corner of the ceiling. They cannot hear the

one out in the theatre because of the clicking of the machine in operation. The cue sheet is the operator's bible.

Now his machine is running low. There is only an inch or so more for the needle to travel on the record. When the Chief Operator makes a sign, No. 2 operator lights up his machine, sets the carbons, sees that it is all O.K. He, too, goes to the port and looks out, waiting for a cue.

It comes. At a precise moment he snaps a switch, and his machine begins to run. The light from it is kept from the screen by a diaphragm over the lens. Both men are watching intently. No. 2 machine is getting up to speed. Suddenly No. 1 operator steps on a foot lever, a lever that cuts the light off his machine and opens No. 2 simultaneously. Now No. 2 is furnishing the movie, but the sound is still coming from the record on No. 1.

No. 2 operator has his hand on the "switch-over." The moment comes: a pause in the music, or whatever the cue is, and his hand moves quick as lightning.

You, sitting out in the audience, never know how the pick-up is switched from one record to

another. You are conscious of no break. But his hand has thrown the switch from the No. 1 side to the No. 2 side, and now No. 2 is furnishing both picture and sound.

No. 1 operator and the Chief are bent over that machine, changing the film, putting on the record, for Reel 3. The film is threaded in, and a frame marked "START" is brought opposite the "gate." The machine is locked there.

There is a red arrow on the record; opposite is the start of the spiral grooving. The Chief Operator puts the record on so that the needle is exactly opposite the arrow, the starting point. He puts the needle in the first groove.

The machines use tungsten needles of a special variety that are changed once a day

The record and film are now locked together; neither one can move without the other. They are in perfect synchronism, exactly as they were made out in Hollywood.

Out in the theatre, sitting in the audience, is an Observer. He has a telephone that leads to the projection booth, and a buzzer to signal with. If he buzzes once he means "one point louder"; twice, he means one point "softer"; three times

means answer my phone; four times means emergency—no sound coming through.

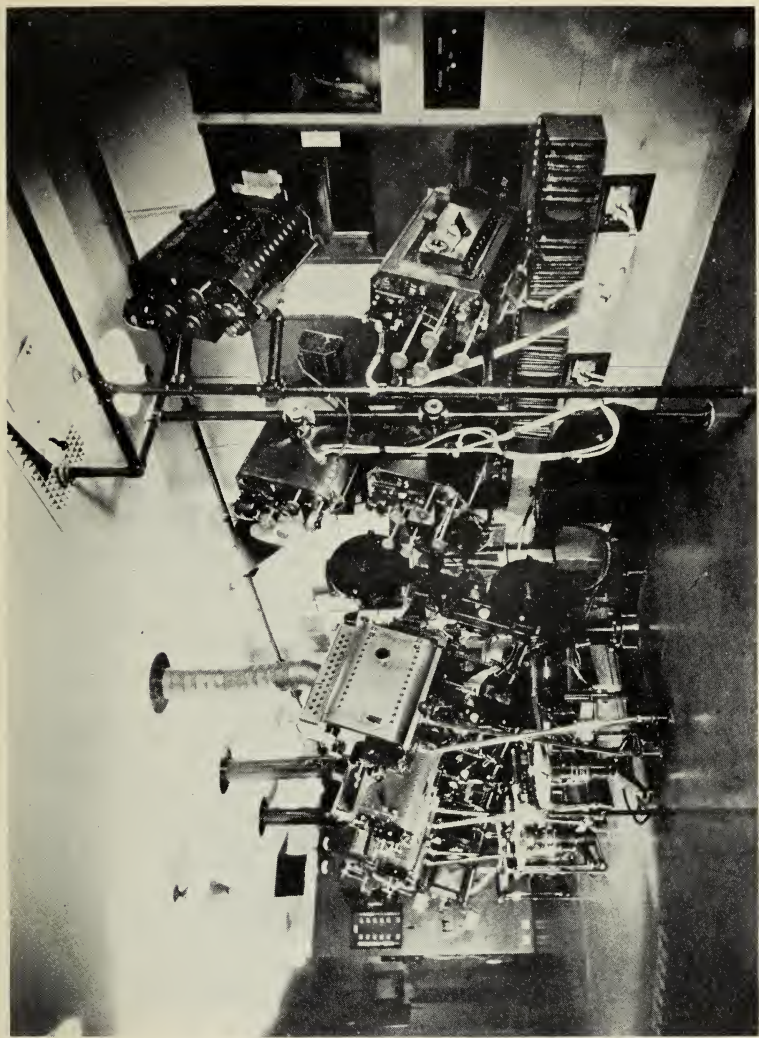
There is an auxiliary panel, to switch to in case the regular panel fails and the audience doesn't hear any sound. The switch to this can be made instantaneously; and, of course, there is no loss of synchronism.

If the film breaks, though, there's trouble. If the break is below the gate it doesn't make any difference. The machine can't be stopped to patch it, so it is just led out on the floor where it piles up. If it is above the gate, however, then the sprocket feed is lost and the picture must be stopped. In fact, it is stopped already.

If it is near the end of a reel, the waiting machine is cut in and the rest of the reel with the broken film is not shown. If it is at the start or the middle of a reel, however, so that too much would be lost, the film is spliced and the reel begun over again.

In these splices, if any of the film is taken out, it is replaced with blank frames. Every foot of film is numbered, and there must be sixteen frames to every foot. Blank film is furnished for this purpose.

But there is almost never trouble of this sort.



The most modern projection room installed at the Warner Brothers Theatre, Hollywood, Calif.

In the first place, because it involves worse consequences than an ordinary silent film break, the film for talking pictures is inspected more carefully. It is inspected by the distributor before it goes to the theatre; and every day by the theatre people. After it has been in use about a month it is put on the shelf and a new print issued.

What if a record should be dropped and break?

The operator would just get another one. In anticipation of such trouble, every theatre is provided with four copies of each record.

A scratchy record is immediately discarded. In theatres running the same show for a long period, records are changed once a week or oftener and the old records broken.

Old records are never sent out from the distributor. No matter if the records have only been used one day when they are returned they are destroyed and an entirely fresh set issued when the film goes out again.

The cue sheets come in part with the film and records. They are added to by the Chief Operator and House Manager at their preview showing before the Talkie is shown to the public. Sometimes the operators go over the show two or three

times to get their amplification cues and that sort of thing right.

In most theatres there isn't anybody on the stage at all any more. The curtain, house lights, etc., are all operated from the "box," as the operator's booth is called.

In most theatres there is a third machine in the box used as a standby, in case either Nos. 1 or 2 break down.

Most theatre Talkie operators now show keen interest in their jobs. They have to be nimble-witted. They are very well paid, getting over a hundred dollars a week in large theatres and working short hours, though very concentratedly.

PART IV

THE TALKIE BOOM

HOW PUBLIC TASTE RAN WILD AND THE EFFECT ON
THE MOVIE INDUSTRY

CHAPTER XIX

THE ACTOR'S END

TALKING pictures offer a new medium of dramatic expression, the third such medium in history, and one probably destined to be the greatest of them all, since it combines all the good points of both the others without suffering from the limitations of either of them.

Prior to 1896 there was only one: the legitimate stage. Between 1896 and 1926 there were two, as the Motion Picture grew to gigantic stature in the entertainment field. And in 1926 came the "Talkies."

All of them had one thing in common—their dramatic problems. This was the task of conveying a dramatic story from the mind of an "author" or "playwright" to the minds and vision of an audience. The vehicles were actors and actresses who assumed "parts," talked, sang or pantomimed their "lines," and for the time being lived through the dramatic actions that comprised the piece.

It might be a simple recitation; it might be a vaudeville skit; it might be musical comedy, drama, melodrama, farce, comedy. In any it ran all or part of the range of human emotions; and there one has the force that makes dramatic art possible. For emotion is common to the whole human race. It is the fact that an author or playwright can transmit, through actors who can feel, an emotion to an audience that makes theatric drama possible.

Psychologists tell us that audiences go to plays for the same reason that people read books, as a means of "escaping" from their everyday world. We are told that we identify ourselves with the characters of the play; and, for the time being at least, become heroic, or fascinating, or fiendish, or whatever it is that we usually are not but would secretly like to be. Sex, too, plays a part. Every woman in an audience responds subconsciously to the love-making of the leading man. Close-ups of cinema damsels have their effect upon a horde of admirers.

The modern theatre, at which the church has so often lifted its eyebrows, was given to us by the church. Missionary priests of early Christianity,

faced with a problem of dramatizing the story of the Bible so that converts might be gained to a faith with a keynote spiritual rather than pagan, found that they could convince by action where they failed to move by words. Their audience was the untutored, half wild, serf-population of early England; their plays were called Moralities. Managers and stage-directors were priests and monks. Players were chosen from the more enlightened converts. The stage was a rude cart or platform of rough lumber. The stories were tales of miracles, of virtue rewarded and sinners delivered to the Devil, C.O.D.

Under the militant crusading of these missionaries, England and the Continent were Christianized. The Church became an institution rather than a campaign. Yet to this day, a thousand years later, the "Morality" survives in such widely separated instances as the Passion Play at Oberammergau, and the Pilgrimage Play was given every summer at—of all places—Hollywood, California.

But the English-speaking theatre, having been launched by the Church, went forward by itself for the two basic reasons that have ever since

perpetuated it: first, because audiences liked it; and secondly, because they were willing to pay money to witness its performances.

As soon as that was found out, playwrights, producers, actors and other stage folk made their appearance and joined forces!

Perhaps three or four irreverent souls once witnessed a morality play, back in those early days, and conceived a mimic of it with more spice, more humor, than the version which the priests had given. Perhaps they offered the thing impromptu, in the village ale house that night, and were rewarded by the bawdy roars of their audience. Perhaps a member of the Manorial household was there, and persuaded them to come and give it before His Lordship, who had a nice taste in bawdiness. Perhaps, then, they stood trembling before His Lordship, launched hesitatingly into their first lines, were caught by the spirit of the thing, and forgot their fears. Perhaps His Lordship laughed and flung them a purse; and when next he entertained, sent for them to do it over again for the visitor. And gave them another purse.

Perhaps, seeing the pot of gold to be gained so

pleasantly, the erstwhile actors took to the highways and byways of England, altering their piece to suit each locality, and became the first company of strolling players.

At any rate, by the fourteenth and fifteenth century, the play was well known in England. Royalty approved and subsidized the theatre; the nobility had a discerning eye for slapstick comedy. And what pleased the nobility drew the hoi-polloi even then as now. There were serious dramatists, too, and famous actors. With the coming of the Renaissance it was learned that the theatre was as old as man, that the early Greeks had had a drama of their own and carried it to wonderful heights of artistry.

In the sixteenth century there were dozens of theatres in London. That great age of prowess and discovery which launched our modern era, brought to light the genius of Shakespeare, greatest of the world's dramatists since the beginning of time.

The Stage of Shakespeare's day was one in which the whole burden of illusion was borne by the players and the playwright. There was no scenery, and only the crudest of "properties."

The locale of the action was designated by a card hung to one side of the platform, bearing some such announcement as *The Decke of a Shippe*, or *Juliet's Bedchamber*. The actors were in costume, some of them in women's costumes, for there were no actresses! The parts of women were taken by young boys.

The stage was a vital form of amusement in those days because few people could read. The surest way of reaching an audience with a story was to have it spoken; it was still a time of minstrels and story tellers.

As education went forward and the printing presses of the world began to run day and night making books that ultimately found their way into every household, literature drew away from the theatrical form. Verse, originally a trick to enable lines to be remembered, began to give way to prose. The theatre declined.

But it never died out. It crossed the sea soon after the Pilgrim Fathers. There were theatres in the cities of the New World long before the Revolution and there have been theatres ever since.

It has been said that the greatest addition to the theatre since Shakespeare has been the



John Barrymore, Master Mariner

actress. Undoubtedly (with an obeisance in the direction of Mr. Ziegfeld and the Tired Business Man) that is a statement not to be taken lightly. Woman has been "glorified" in one form or another ever since her arrival on the theatrical scene. But apart from her, there were two great theatrical innovations long before the dawn of the nineteenth century. One was the growing use of music as a means of reaching the audience's emotions; the other was the introduction of scenery and lights to help persuade those "out front" that the world of the theatre was real.

Outside the theatre the growth of the mechanical age was providing box-office aids that changed the theatrical producer from a shabby and not always respected member of society to a suave person whose wardrobe included coats with fur collars and who smoked the best Havana cigars.

For the curse of the theatre has always been the sad fact that, no matter how good your play was, there came a time when everybody that was going to see it had seen it, and you had to fold it up and get another one. It was novelty that people liked; and their wishes were reflected in that sensitive nerve of the theatre, the box office.

Before the arrival of the railroad and modern transportation the problem of taking the mountain to Mahomet had been a very difficult one. No play could seek fresh fields. If it went on in New York, it stayed in New York. There might be a fresh audience in Philadelphia, and another one in Annapolis and another in Richmond; but for all the good they did the theatrical producer, they might as well have been in China.

By the middle of the last century, however, the Iron Horse that did so much for so many other people, had done its bit for the theatre. Plays went On Tour; and they were tours! Actors were introduced to that zestful pastime, the One Night Stand. Theatrical tradition has it that some of the plays that started out from New York in the middle fifties have never been heard of since, but are still wandering about the hamlets of the country like Flying Dutchmen, seeking a way back to Broadway. Be that as it may, many Road Companies made lots of money for their producers. It became profitable to import English actors, and the Opera House became a part of the rural American scene.

The "Road" was responsible for a new and

complete variety of "flop," to use the theatrical term for good entertainment that audiences do not appreciate. This was the flop in which the troupe ran out of money in Peoria or some such place, and woke up in the morning to discover that the Manager had vanished after pawning the wardrobes for enough money to take him back to a brighter land.

They were gay days. They produced a host of actors and actresses whose names are forgotten now, and some whose names have lived—Edmund Keene, Joseph Jefferson, the elder Barrymores, and their ilk.

What revivals they must be staging on another Gay White Way!

When the Talkies came to Hollywood there were two kinds of actors professionally engaged in the film-foundries of that fair city: those whose training was limited to cinema work, and those who had also had "legitimate" experience. They were of both sexes.

There was one curious difference, however, between the classification of the majority of members of either sex. Most of the women had had their training in film, while a larger proportion of the

men had come to the screen from legitimate work than had begun with the screen and stayed with it. There were just enough exceptions to this rule to make it interesting.

These people lived in a relatively stable world. They were making money. They were more or less sure of jobs. Every year the ravages which time plays upon the features carried some of them out of the picture. But, as a whole, the colony was a stable entity that knew what it was up against.

When it came to getting employment, the requirement was purely cinematic: how one photographed and how well one could act for the screen, i.e., in cinema-pantomime.

The worst thing that could befall a film actor was the expiration of a contract, or the downfall of a company. At the most this meant hunting another contract or lining up with another company. Few of them had, or wanted, long-time contracts, because of the practice that had grown up between companies of "lending" actors (for a price considerably greater than the actor's contract called for). (He saw none of the difference.) They were, then, mostly free-lances.

About a hundred of them were recognized "stars"; they were featured in the pictures they appeared in. They were of greater or lesser magnitude. Besides these, there were some six or seven hundred who played supporting parts. They made up the great body of the screen world. They were "in." They made all their money out of acting.

Just outside the door, yearning toward the screen, were several thousand people, the "extras." Many of these cherished hopes that some day their true merit might be recognized. But most of them cared only for the seven-fifty a day and didn't want to be more than an extra. Few of them worked steadily enough to be supported by their movie work. Some were "specialty" extras who were always sure of a job when people of certain qualifications were needed. Hundreds of them were young girls who had aspirations toward stardom. The mass of extras ranged in age from fifteen to eighty; and, in ability, from none at all to hidden genius. Maybe there was one hidden genius in the whole number.

When the Talkie Boom came the horde of docile extras became a howling mob of hopefuls. It was

evident that the only job of the future was a Talkie job.

But what constituted the requirements for a Talkie job?

There were immediate choruses from both camps. It was said: "(1). The ideal talkie actor is the movie actor. (2). The ideal talkie actor is the movie actor who has had dramatic experience." There was heard a third chorus from Broadway, New York, which said: "The ideal Talkie actor is the straight legitimate actor." These three choruses were dinned into the ears of the producers as if it was Election night. And there was a fine scramble to find out what it took to be a talkie actor.

Many of the movie producers, who had movie actors on long term contracts, had built them up to stardom by advertising, etc., joined chorus number one. From these producers we heard such statements as: "95% of the present movie actors will work over into the talkies." That was optimistic in tone, but designed to allay the panic rather than to express true sentiments. Nobody had any true sentiments. Nobody knew what the talkie would require. Nobody knows very much



Dolores Costello

about it today. Only the fundamentals have been tapped.

Lots of the producers that made such statements through their publicity departments, were scrambling around Broadway signing up stage stars. Their belief about the 95% didn't draw much water when they cast pictures.

For the moment, the people in clover were the movie actors who had had legitimate experience. Small and great, the latter class walked down Sunset Boulevard in 1928 looking as happy as legatees. And oh, the dirty looks they got from the "outs." The straight movie people, it seemed, didn't know enough about using their voices. The straight stage people didn't know enough about working in front of the camera. Here again, there were interesting exceptions, but we are considering the mass of movie actors.

A word about the Extras. They went into hard times. The Talkie of 1928 used a small cast; few extras. Extras used up all their money and left Hollywood in droves; those that didn't leave got jobs at anything they could find. They are all over Los Angeles today, behind department store counters, selling cigarettes, selling all sorts of

things. There couldn't be a worse time than now for an extra to be in Hollywood.

What determined whether a movie actor or anybody else got a job in talkies? The Voice test, first of all. Applicants for parts were placed in front of a microphone under talking-picture conditions, and a record was made of their voice. Then everybody went into the play-back room and listened to it.

The nervous strain of this voice test made strong men weep, or words to that effect. Even most experienced stars have become so confused that they made perfect boobs of themselves.

Why the voice test? Why not any kind of a voice? Do we have to have English accents? or what is it? No, it's not English accents. Of course, the voice ought to be pleasing; but it's more than that. It seems that the quality with which a voice records has much to do with its inherent vocal characteristics, and much to do with the way it is used. It seems that naturally resonant voices, voices with chest tones, set the Talkie recording apparatus into motion better than did "head" voices, or nasal voices, or voices improperly "placed" or used, or voices that used

certain sectional inflections. The actor couldn't slur his words; he had to pronounce them distinctly, but not artificially. He had to make them clear but not stilted.

It seemed, after the voice test, that the voices of some were "out" forever; that others had to do a good deal of training; and that some who had never been terribly important in the movie world now became invaluable for talkies. There are about twenty people in Hollywood now, none of them great big stars, who are making pictures all the time and often working in two or three at once. People like John Miljan and Johnny Arthur. Their voices record perfectly and they are as precious as pearls when it comes to filling up a cast.

So passing the voice test was the prime requisite of getting a job, and it didn't matter if one were as beautiful as Sheba, if she didn't have a voice. It burned some of them up when they saw girls who weren't nearly as pretty get jobs because they could speak.

One beautiful girl lost her temper completely before the casting director. "You must be trying to drive people out of the theatres!" she stormed.

"We're trying to pull 'em in, baby," he retorted. "You dolls have gotta learn something, an' that is that yer pans ain't what they was. When the folks out front hear you begin to talk, they forget about those beautiful eyes of yours, an' listen to what yer sayin'. Your little friend may not have the classy looks you got, but she can talk rings around you!"

Another startling (for Hollywood) requisite of getting a job in talkies, was Brains.

There was one little girl who was a perfectly charming creature to look at, and who had a voice that dripped honey right out of the loud speakers. They thought she was the find of all time. Until they began working with her.

That little girl had never thought ten thoughts in her life. She was used to standing in front of a movie camera and having a director say, "All right, now, dear . . . Smile!" And she would smile—to the tune of a thousand fan-mail letters a day.

They handed her some talking-picture lines and told her she had to memorize them because she would have to speak them in the picture. She decided they were too hard. Without telling any-

body about it she made up some very approximate lines of her own which she used when they started work.

There was an explosion: "Listen, honey, didn't you learn those lines I gave you?"

Melting smile. "Oh, no! Why I could never remember those! Mine are better, anyway!"

So they gave her the script and made her read them. She read them through the part. They rehearsed it ten times. Then they took the script away from her . . . and she couldn't remember one of them. Then they let her out. A girl that isn't as pretty but whose brain functions well, finished the picture.

Just give us a half-way decent voice, and brains, is the director's plea now. The dumb-bells are out. One begins to see why Hollywood's complexion is changing.

CHAPTER XX

HOLLYWOOD PANIC

THE motion picture world was being rocked to its very bottom by a revolutionary reorganization that touched every person, every element in it. 1928 was indeed the year of the great cinematic convulsion.

Consider Hollywood, the producing center of most of the world's mass amusement. The factory. The town of cameras and studios and actors and directors and yes-men and what not. When 1928 dawned Hollywood was a movie city. When 1928 went over the hill, Hollywood was a Talkie city, and the difference between the two is more than a word. For though the talking picture and the motion picture are certainly related, members of the large family of dramatic media, the talking picture and the motion picture are not brothers, nor even first cousins. From start to finish, from script to product, the true

talking picture and the true motion picture differ to some degree at every single stage.

The change in Hollywood was genuine upsetting, revolution. Nor was it rosy-tinted. Only the strong survived; and that statement goes all the way down the line.

Hollywood didn't take the Talkie very seriously before 1928. Firm in its movie faith, it regarded the Warner lot with a condescending eye. It thought the Talkie was a flash in the pan, and said so. No one but Warners were making talking pictures. It was the general belief that they would be the end of Warners. Hollywood sat back and waited for the crash, all set to say "I told you so."

The crash didn't come.

Instead, it began to be rumored about that *The Jazz Singer* was setting box-office records; that Warners had put dialogue into other pictures and were going to make their 1928 output one of talking pictures.

Those rumors were discounted by the wise guys. Publicity stuff, they said. Staving off the fatal date. Bet they don't put out three pictures with talk in them. That's not what the public wants,

you know. But it seemed that Warners were going ahead casting for talkies, and making talkies.

It was said that Jolson was signed for another one (*The Singing Fool*). Hollywood didn't like that. It didn't like the idea that actors from Broadway could come across the country and step into the center of the Hollywood stage as money-makers. Hollywood had repelled the foreign invasion. It had repelled many theatrical invasions. It had always proved that movie actors could make movies better than any other actors could.

Rumors went flying around that movie actors weren't proving so good in Talkies; that Warners was looking to Broadway for other celebrities besides Jolson.

In mid-spring the bomb burst. It was authentically announced that one after another of the old-line movie companies was negotiating for talking picture machinery and would enter into talking picture production on a large scale. These reports were forced by the success of Warner talkies during the winter. Movie makers had tried to kill the Talkie, had tried to put Warners out. They had failed. The inconsequential

stranger was the guest of honor at the Public's feast.

The other companies announced that they would soon have "the best Talkies in the world" on the market.

At the same time, in hope of keeping their industry quiet and stable, they made announcements that while they believed the Talkie had come to stay, they thought the movie would always remain the more important of the two. This announcement deceived no one, nor did it quiet the movie city's fears.

Change was coming. Lightning was in the sky. Where would it strike?

For years the great premium had been upon youth and beauty. Dramatic talent was an asset of sorts, but youth and beauty were essentials. The definition of these terms changed slightly from year to year; so did the exact characteristics that fulfilled them; but the basic idea remained the same. Now the balance swung the other way, and every one's attention became concentrated upon dramatic talent. It was all sort of panicky. No one really knew anything; there were a million rumors in the air.

The worst of them, from the Hollywood viewpoint, was that which said that New York actors and actresses would be imported to play all the leading talkie rôles because of their experience in dramatic acting and in the use of the voice. The voices of most movie stars were what Times Square would call "a giggle."

There was a wild scurrying around to see how one could acquire those precious stage attributes. Supply sprang up in answer to demand. Supply of a sort. For dozens of "Schools of Dramatic Art" and "Voice Culture" sprang up in the city of celluloid. Their number increased until they had a separate section in the telephone book.

Of course none of them knew what was really required by the talkie, but they all taught lots of dramatic art. Little girls who had latterly been parading down Sunset Boulevard as exponents of sex-appeal and the then-movie requirements for same, now adopted the "grand manner," out-Barrymore'd Ethel herself, and went around in the guise of classical tragediennes.

Every road-show that passed through Los Angeles was attended in hordes by eager students of the drama. Fortune tellers were besieged.

One of them who let it be known that she could foretell whether one would be a success in talkies, cleaned up a "fortune," all right. She told every one that they were bound to be the greatest star pictures had ever known. There was some comfort in that. But not much actuality.

It does take acting ability and it does take brains to play in talkies. And since there really wasn't time to train actors in these all-important elements; since talking-pictures had to be got out without delay, they were cast from the best material available, which was not always the pretty (or handsome) face. Yes, it was rather revolutionary.

For there were many excellent actors in Hollywood, people of long experience and fine training, who had rather been eclipsed by the youth and beauty idea and who now began to come into their own. Pauline Frederick, famous on the New York boards two decades ago, had gone through a career in the movies, and rather come to the end of it. She was no longer getting fat contracts. Pauline Frederick was famous for her voice. Now, instead of being "all through," she was in demand.

Consider the names of some others who have made important talking pictures in 1928. Conrad Nagel, son of a Hollywood physician, had been in pictures for years, and had achieved a modest but not a tremendous success. He had long been known in the movie colony for his diction, particularly for his readings of poetry, etc. He jumped into immediate prominence in the talkies and has become one of the actors most in demand for leading parts. In on the ground floor, he has outstripped dozens of his cinema rivals.

Texas Guinan was imported from New York to do *Queen of the Night Clubs*. Hollywood didn't like that and was catty. So was Texas. She had a swell time on the Warner lot, worked hard, and within those walls got along splendidly; but outside she let it be known that she panted for Broadway, that Hollywood was the bunk and all that sort of thing. Hollywood sneered back. And Texas was front-page news. Few people in the land failed to hear that she had made the picture.

Fanny Brice, long a stage star, was imported from New York to do *My Man*. It was her first

appearance before cameras. The picture was a knockout.

Monte Blue, a movie star of moderate fame, proved to have an excellent Vitaphone voice, and has been turning out dialogue pictures as fast as he can make them ever since. John Boles and Carlotta King, singers, of musical comedy fame, were imported to do *The Desert Song*. Al Jolson, from Broadway, was the greatest cinematic box-office attraction of the year.

Supporting casts are about 75% composed of ex-legitimate actors. And it is in supporting parts that most of Hollywood makes its money. John and Lionel Barrymore, famous as stage folk, later famous as movie folk, promised to come into the golden era of their dramatic work. Bids for them were strenuous.

There were scouts covering New York and the legitimate stage looking for talking talent, but there wasn't much interest in what was available west. New names, it seemed, would go with talkies. A movie star's name on a marquee advertising her in a talkie would not draw half the crowds that a famous stage name would attract. The voice had come into its own.

While these new stars were in the making, dozens of old cinema people had plunged into that eclipse that is the rude penalty of theatrical supersession. Others were making good. The movie world was upside down, all right. What were Doug and Mary going to do? Would Chaplin make talkie comedies? How about this, and how about that? Rumor. Query. Surmise. And no one knew a damn thing about it.

Whenever an actor had worked on a Talkie, he became a sage. Hundreds of questions were fired at him . . . and he answered all of them. He was an authority.

The Hollywood panic was, if anything, intensified by the developments as the year progressed. The stable movie world was turning upside down. Long established companies were weakening, were already dropping out of the procession. It was certain that there would be a new order of things; the question was, whom to tie to.

In October the R. C. A. Photophone, Inc., having been unable to make inroads with the existing movie companies in its efforts to get its talking picture machine on the market, bought

Pathe and F. B. O. and commenced expanding those not-overly strong units. For outlets they bought the Keith-Orpheum circuit of theatres.

Simultaneously it was learned that Warner Brothers were acquiring First National.

Even in ownership, then, the old order of things was to go; for it was obvious that these were only the beginnings of changes that were to come. There were other anxious people in Hollywood besides the actors, then.

Directors were learning that talkie-direction was different from that of movies. Script writers, continuity writers, editorial departments, were learning that it is not easy to write dialogue. It seemed that importations would be made in those departments. The only people unaffected were the electricians, carpenters, property men, research departments, art departments.

No tremendous talkie star has as yet arisen, and there very likely won't be such a star until things have stabilized a little. Heaven knows who it will be when it comes. It may be some one who is already a scintillating orb in the legitimate theatrical heavens. It may be some one who occupies a similar position in the movie

world. But very likely it will be a *new* somebody. Somebody who comes into this new medium and has the intelligence to understand what it's all about: and a voice and personality and looks, all combined.

But there will be tremendous talkie stars. There will be the greatest stars that the theatre has ever known. There will be stars that eclipse Mary Pickford's popularity when she was at her height . . . and Charlie Chaplin's. The voice is just that kind of a dramatic tool.

In many ways it amounts to "breaking in" all over again, for the Hollywoodite. Take the case of Louise Fazenda, who is not only the screen's leading comedienne, but a girl who has proven and is proving herself to be a genuine and adaptable actress. Louise broke into the cinema in the hey-day of Mack Sennett, and played a slapstick slavey for many, many laughs and more than one moon. She was known from one end of the country to the other as a comedienne, as well known as any of the men comics.

And then things changed. It wasn't a question of her wanting to "do Hamlet." But slapstick passed out of date. It was too crude for



Louise Fazenda

“pictures” that were acquiring tone and polish and swell stars and Will Hayses. With the passage of that earlier picture day, many of its people passed too; few were able to make the transition. But Louise made it, and broke into juvenile-character parts. Occasionally she played straight; occasionally she played with broad humor that was almost clowning; often she did real character stuff. And for the second time she made the grade. Her name was a big box-office asset.

Came the Talkie. Louise was cast in *The Terror*, originally a silent picture, in a new type of character part. She was maiden lady of uncertain years with a leaning toward spiritism. It was decided to make a second edition of *The Terror*, a 100% Talkie without so much as a subtitle.

Louise had never used her voice for “acting” purposes. She had a voice test. Her own voice registered well, but it wasn’t the voice of a maiden lady of uncertain years, with a leaning toward spiritism. And so Louise took a blind plunge into voice characterization. Being a most intelligent person, she not only got away with it but

proved that she was going to be very valuable in Talkies.

Few "movie" actors had stage fright on their first appearance before the "talkie" microphone. Machinery and the studio atmosphere did not frighten them; they were at home. Moreover, movie actors had always "talked" when making pictures. Their speeches had not been set speeches; often they were entirely irrelevant. Watching silent pictures made I heard Josephine Dunn introducing Monte Blue to a number of imaginary folk—Miss Spuyten Duyvil, Mr. Washington Square, etc., all with the most charming manner.

But they had used their voices naturally, and therefore carelessly. They were not accustomed to the enunciation of the actor, the distinct speech that gets every syllable over. Their accents were not the accents of the stage. And however good it may be to be natural, the result of their speech when recorded was not so good, speaking professionally, as was that of the legitimate actor.

The latter usually suffered the pangs of hell on his first appearance before the Mike. Men with the long-time experience of Richard Bennett went

through the tortures of the damned, until their first words were spoken. Then they seemed to regain their faculties; and presently they were so interested in what they were doing that they had forgotten the great silent studio, the glaring lights, the many watching eyes.

So it would seem that both the movie and the legitimate actor have certain individual advantages in the transition to talkie actors. The odds may be slightly in favor of the legitimate actor; but the chances are that it depends pretty much on the individual, and that those with courage, brains and a genuine feeling for acting will come through on top.

Talkie actors have to feel their parts a great deal more than they ever did for the silent screen. This "feeling" they have to pull up out of themselves. Formerly they had the director, always working on them while they were being "shot." The director told them: "Now, Monte, look up at her and smile. Now you see her frowning at you and your face changes to a look of concern. 'What's the matter, dear?' you ask. She gives you the engagement ring. Give him the ring, May. Now turn and go, quickly. You look

down at it, Monte, as if you couldn't believe it. You take a step after her . . . *Cut!*" That was Lloyd Bacon directing Monte Blue and May McAvoy in a silent portion of *No Defense*.

And through it all a sobbing violin and a little wheezy portable organ were playing "atmosphere." It was Dvorak's *Songs My Mother Taught Me*.

When Blue was asked what difference the absence of the director's "directing" and of atmosphere music made to him when he was working in the dialogue sequences, he said:

"Like most other actors in the business, I guess, it seems wonderful to me to have the director shut up. Of course I know it's necessary for him to direct silent pictures; and most of them are pretty considerate. In silent pictures we can't feel what's going on, we can't time. We don't see it from outside the way he does, and so it's better to be directed. But once in a while you get a director who does nothing else *but* talk. To have that voice stilled is wonderful!"

"Doesn't the silence seem strange to you?"

"You bet it does. You know, I've never been on the stage, so I have to work this thing out in

my own way. And you get a feeling out there that these talking pictures are being made and that somehow those records may last forever, or at least for the dickens of a long time, not because you think you're that good, but just because they're records. You get a sort of feeling of responsibility to make them as perfect as you can."

"Do you miss the 'atmospheric'?"

"I do. I've always depended on it. That thing you heard them play; whenever I've got a scene to do with any feeling in it and they ask me 'Anything special you want us to play for you, Mr. Blue?' I tell them, '*Songs My Mother Taught Me*,' and I can feel bad as hell while they're playing it. Now there's no atmospheric and I have to dig all that out of myself. It's no cinch, either. Because if you're going to make an audience feel bad with you, you really have to feel bad yourself."

Taking away the director's voice made quite a difference to one actor, Mr. Rin Tin Tin, or "the dog," as he is usually known on the lot. They decided to make a talking picture starring Rinty. They wanted his pants and barks and growls and pawings at the door and all that sort of thing.

But "the dog" had always followed the special directing of his owner, a tall, athletic, gray-haired chap named Duncan. "Stop!" "Lie Down" "Speak" "Go Right" "Go Left" "Growl" "Sick 'im." The dog, with almost supernatural understanding, would answer every command, his eyes fixed on his master, working as hard as he could to do the thing well.

Now, during Vitaphone sequences, Duncan couldn't use his voice any more. Would they be able to make the picture? Duncan thought so. He began working with Rinty, simply using gestures; motioning right, left, stopping him, beckoning him on. The dog responded marvelously! They were able to get him to do anything they wanted to without saying a word.

During a scene in which they were working with Rinty and little Davey Lee, they had ten times more trouble with the youngster than they did with the dog . . . and the dog had ten times more to do!

Singers have less difficulty in making talkies than any one else. Once it's determined that their voices record well, the worst is over because they do have music to carry them along. They

hear the familiar, often rehearsed bars of their music "cue" and slide into song as easily as if they were in their own homes. And they do sing! Under those perfect acoustic conditions, with their voices ringing out as clear as bells, they put everything they have into it.

When Carlotta King and John Boles, musical comedy stars, sang the leading roles in *The Desert Song*, the first Vitaphone musical comedy, it seemed to a watcher in the studio that they were singing to each other instead of to an audience. It was as though they were trying to win each other's applause. And since the characters they were portraying (*Margot* and *Pierre*) were in love with each other, the result was splendid.

In making musical comedy for the talkies, the actors of course, are on the set, with the microphones concealed near them. In front of them is the row of camera booths, anywhere from three to seven of them, with the director on a chair in between a pair of booths and the technician at his table behind the director. Back of the camera booths is the orchestra, microphones at strategic points overhead, screens and drapes at strategic points about it to help the acoustics. Where he

can be seen between the camera booths stands the musical director of the picture, in view of the actors and directing them. The orchestra director takes his cues and timing from the musical director, for the orchestra director is usually cut off from the "set" by the camera booths, so that he cannot see what is going on, nor can the actors see his baton.

Rather strange to be in a "movie studio" full of song and the swelling tones of superb musicians. But it isn't a movie studio: it's a Talking Studio now!

Learning lines hits different actors differently. Some of them have discovered amazing memories, some of them have discovered amazing forgetteries. Usually, now, they are given the script a fortnight or so before work starts on the "takes," so that they have a chance to study up on their scenes beforehand if they want to.

"That's what I do," said Ed Martindel, the handsome old veteran who does so well with French Generals, Retired Millionaires, and that sort of thing. Martindel has been about the stage, very successfully, all his life. "I memorize my lines before the picture ever starts. Then all

I have to do is brush up on them just before we go out on the set."

"If I did that," John Miljan cut in, "I'd never say the right lines on the right day. The only way I can work it is to get down here half an hour ahead of the rest of you, get over in a corner and study like the devil. They stay in my head just long enough for me to make that scene; then they're gone forever. It keeps me from worrying. I tried the other stunt, but I found that I always knew yesterday's lines better than I knew today's. No, my system is the only one."

A talkie, from the actor's viewpoint, is only one performance, you see: and it's not like a stage performance. It doesn't run through from start to finish, three hours of acting. It's made in little bits, from two to five or six minutes long, which are then spliced together. After the lines needed for any one day have been "said," they're never gone back to.

For that reason, although the "Martindel" system gives perhaps a little more solid feeling to the person who uses it, since he's absolutely certain of his lines, the "Miljan" system is the one more generally used. At nine o'clock in the

morning every corner of the huge studio has some one in it poring over a script, or stalking along gesturing grandly and rolling resounding phrases off his tongue. They may be tough phrases, if it's an underworld picture. The speakers look like a cross between shadow-boxers and five minutes before the curtain of the annual college play.

Sometimes the whole outfit get together and rehearse their stuff together, over and over again.

On one occasion an innocent bystander, friend of the Director, had a script thrust into her hand, was told that she was *Margot*, and called into play as the third member in a most exciting scene. It seemed *Margot* had just been kissed by the *Red Shadow* and was torn between agitation and anger.

The bystander fell into the spirit of the moment, responded to the deadly seriousness of her protagonists, and played *Margot* for all she was worth!

Carlotta King, the real *Margot*, who had never done anything in a movie or talkie line before, was interviewed later.

"Isn't it awfully hard to go into a short scene 'cold'?" she was asked. "Suppose the scene's



From Hamlet to Hollywood

After a successful season on the London stage in "Hamlet" John Barrymore arrives back on board the *Olympic* on his way to Hollywood

a climax. On the stage, you've been in the part for a couple of hours; you're living it; you *are* Margot. You're excited. You feel what you're doing, saying, singing. Here, you plunge into the climax from a clammy moment of silence; in a moment you're saying lines that must carry feeling emotion."

"I know," she replied. "It's been the hardest thing to adjust myself to. Actually, though, now that I've been working with the talkie for awhile, I use the moment that I'm standing there waiting for the action to start, to key myself into the action. But it all has to come out of myself, if you know what I mean. On the stage it would have come to me out of the person I was playing opposite, out of the music, out of the character. Yes, it's hard in the talkies. It's one of the things we have to get used to."

One of the things; and there are dozens and dozens of them. The talkies are a new medium. And no matter how experienced a stage person the actor is, no matter how extensive his previous movie experience may have been, he's working ahead in something that is just being pioneered, something whose rules of today may be broken

tomorrow for a new and better set. He's making history every time he opens his mouth!

Because of that there was a delightful naïveté about a talking picture studio in those days at the beginning of 1928 when all the talkies that had ever been made didn't number up to a hundred. No one's ashamed to learn; no one's ashamed to admit his ignorance. The feeling was, actually, that one was a little privileged to be engaged in the undertaking, be he producer, director, actor, cameraman or prop boy.

The greatest and the lowliest are still experimenting. For though their talkie of today is a marvel compared to that of six months ago, they know that the talkie of tomorrow is going to be just that much different again. There is almost no talkie made that doesn't alter their knowledge of the art.

No matter how well trained, how perfect, an actor's voice is, he hopes he can still learn to use it better for talkie purposes. No matter what his knowledge of stage or movie timing, of climax, of suspense, of all the arts of drama, he can still learn that his knowledge must be applied just a little differently in the talkie than in anything else in the dramatic world.

There's a great feeling of tomorrow in the work they all do. There's a great feeling that this is the dramatic medium of the century. There's really a feeling that they're on the right track at last; that the movie was just an interlude; that, however interesting silent pictures may be, *the thing* has come at last.

It may seem crude. Lots of it is very crude. The actors posture and stalk around, and speak like rank amateurs—and think they're great actors. But that's a healthy sign. If this talkie business were something that could be mastered over-night, it wouldn't be worth much. It's a good stiff challenge to every one that has anything to do with using it.

Four movie actors started out on a wild party one day this past fall. They got so interested "talking shop" about the talkies that they talked all night—and forgot to go on the party!

CHAPTER XXI

TRIUMPH

UNDER pressure of the economy wave, production in Hollywood had been speeded up in 1927. Almost every company drove through and finished its yearly schedule from one to three weeks before the end of the year. Then the studios were shut down until the new year, the staffs laid off; and there was a wave of panic among the people of the movie world in Hollywood. Those big lots were quiet for the first time in years. Could it be that the movie's golden flow would not go on forever?

When *Glorious Betsy*, *Tenderloin* and *The Lion and the Mouse* were finished, Warner Brothers shut down, too. Mr. and Mrs. Harry, Mr. and Mrs. Albert, Mr. and Mrs. Jack Warner, Mr. and Mrs. William Koenig (production manager), and Mr. and Mrs. Darryl Francis Zanuck (head of the Scenario Department) went off to Europe for a holiday after two years of concentrated war-

fare. But there were others who did not go to Europe. And Harry didn't stay long. He came back to New York and watched things.

People from other companies were watching things, too. Reports from their own box-offices were depressing. They had men counting the daily crowds going into *The Jazz Singer*. They had men watching the other theatres that were showing Vitaphone.

Those box offices sang a different story. Of course, *The Jazz Singer* might be Jolson. They had all of them stars that could hold a picture in a theatre for a long run. But it might not.

Foy's "sketches" were going over excellently. He was making a two-reel talkie every week, now, and they were the most popular thing shown in the short line. In February and March, 1928, *Tenderloin*, *Glorious Betsy*, and *The Lion and The Mouse* were released, one after the other. Public reaction was instantaneous.

A strange thing was seen then, and has been evident in a certain degree ever since. Since that beginning, talking pictures have had an enormous fascination for and grip on the public, the common, every-day, movie-going public, who

have demanded them, followed them slavishly, and lavished a fortune on Warners. But since that beginning, the movie critics, most of whom voice the viewpoint of the old time silent picture maker, have carped at them. The critics believed in the silent film as a supreme dramatic medium. They were harsh in their criticism of the talking sequences of those first pictures. They have since shown no overwhelming desire to give any credit. They compare the new talkie to the stage and the old picture, and demand the same perfection of it. This is in itself a great tribute to the mechanical perfection of the talkie and its ultimate value as a dramatic medium.

Nevertheless, the movie critics were of the movie world. And one must not consider Warner Brothers movie producers. They were once; but they have been working with this talkie thing so long now that it seems their entire organization has become one of *Talkie producers*. Its first thought is the talkie, not the movie, as the dramatic medium.

No other Hollywood outfit is in this position. The others are all of them movie producers trying to make talkies.

Talkies should be criticized as talkies, not as movies nor as stage plays. Thought should be given to their novelty and their mechanical limitations. Suggestions and criticism should be directed with a knowledge of these limitations, and should be rather of a kind that will guide these pioneers in the way they should go, instead of carping at them because they are not making movies or stage plays. The Talkie is a dramatic medium by itself.

It is this fact that has had the great appeal on the public. They are willing to accept the limitations for the sake of the "pull," the "appeal" the thing has. Of course, in due time, crudities will have to be ironed out; they will be. This thing moves so fast that what is startling today is already old in the studio. At this moment producers are working on things in Hollywood that are revolutionary compared to the latest the public has seen. It is inevitable that when a medium moves so fast it will not be polished. Polish is only acquired after maturity is reached. The Talkie of the present is decidedly adolescent, though it is far out of swaddling clothes.

William Fox started the Movietone News the

first of the year (1928). He equipped a number of Fox theatres for Movietone, and released eight shorts, three of which were really news, or "topical," as the movie world would call them. They featured the Vatican Choir, Mussolini, etc. Others were Raquel Meller, Fascisti. But they were going over. Warner Brothers, of course, had talkies in full swing.

Movie-makers could no longer overlook the trend. A fortune was pouring into the Warner coffers every day, although there were still only a few more than a hundred theatres equipped to project Vitaphone. That fortune was coming straight out of the pockets, not of the public, but of the other movie makers.

Movie producers are not given to solidarity or cooperation when there is money ahead for those who move fast. They do not confer at times like those and make their moves together. And so the year-old agreement not to equip for talkies until they all did, and then to use the same equipment, went by the board. One by one they began to dicker with Western and with others making talkie equipment.

With the success of Vitaphone, as we have said,

other makers of talking picture apparatus had appeared. Chief among these was the General Electric Company, which marketed its device through the Radio Corporation of America, which in turn offered it now to the public through a newly formed subsidiary, the RCA Photophone Corporation.

The Photophone, like the Fox-Case machine, made its sound record on the margin of the film, but by a different method. Instead of its depending upon the density of the sound picture, it was in the form of a graph, with peaks and valleys—it took its sound note from the “peak.”

There was the Bristolphone, which used records, and was made by a New Haven man named Bristol. There were half a dozen minor ones. The scramble of 1912 was repeated all over again, but this time the devices were electrical, and quite acceptable.

Most of these other companies were offering simply projection devices. Photophone, however, offered recording apparatus as well.

But it was on Western Electric that most of the companies concentrated; and on the record, rather than the film, method of recording. The record

method of recording sound was old; everything was known about it, it was tested, it was accurate. Using the electrical recording and electrical pick-up it was scientifically perfect. The film method was new. Moreover, it had the great disadvantage that weather and heat affected the film and thereby changed the quality and accuracy of the record.

Further, the delicacy of synchronism whereby the record method was adjustable to suit peculiar voice formations, to suit particular theatres, etc., was practically impossible with the film method. The film was accurately synchronized, of course; and it had certain advantages in case of broken film during projection. But its drawbacks more than outweighed its merits. Its one unique feature was that its recording apparatus was mobile; hence, News reels, etc. could be made with it. It could be used outside the studio. The resultant quality was not as good; not good enough for feature pictures; but it was good enough for News reels, just as photography good enough for News reels had never been good enough for features.

Now, at last, Western was in a position to align



Fannie Brice

itself with those whom it considered "desirable." But it was not going to be able to eliminate Warner Brothers. The bitter point, the thing that had made all the others so infernally reluctant to sign up for talkies, had always been the Warner contract. In the beginning this had been exclusive, and had made provisions for Warner to sub-license for an 8% royalty, half of which was to go to Western.

After the "termination agreement" and the new "set-up," Warner had no longer had this exclusive contract. They were a licensee, as any one else would be. But in return for giving up the exclusive contract, they had gotten a provision that Western must account to them for all royalties received from other producers; and out of them must pay over a sum equal to 3% of the other producers' gross talkie receipts, no matter what royalty Western got!

That was the thing that bit the other producers; the realization that 3% of their takings would go to Warner Brothers for twenty years. That was the reason they had been so anxious to get Warner Brothers out of the picture.

And now it was too late. For Warners were

making money hand-over-fist, and were entrenching themselves as rapidly as possible. They were in an excellent strategic position. Early in the year, their difficulties with Western had climaxed in an open rupture. Prohibited under the terms of the contract from taking their differences to court, they had taken the alternative course demanded by the contract, and had requested a Board of Arbitration. At the beginning of 1929 the ponderous movements of the Board were still dragging along.

The Talkie scramble was on. Secretly, men were meeting, conferring, angling for favorable positions. The Products Company was deciding on license forms, etc. Meantime it was delivering equipment for experimental purposes. The first steps were taken toward building other talking picture studios by other companies. On May 10, 1928, Products granted Fox-Case a new, direct license (their old one had been through Vitaphone). On May 11, 1928, Products granted a license to Metro-Goldwyn-Mayer. On May 11, 1928, Products granted a license to Paramount-Famous Players-Lasky Corporation. On May 11, 1928, Products granted a license to United Artists. On

May 18, 1928, Products granted a license to Hal Roach.

There was no longer any mistaking the handwriting on the wall.

In February, 1928, Bryan Foy had been at work on a picture that was the direct outgrowth of his one and two reel sketches. This was *Lights of New York*, the first "all-talkie," the first attempt to use the talking picture as a dramatic medium for a full length presentation. Furthermore, every 1928 Warner Brothers picture was being made with Vitaphone sequences, and many of them were 100% talkies.

Now that the public had met "All Talkies" (another newly coined term) it wanted more of them. Warners proceeded to provide copiously what the public wanted.

The other producers were in a very unpleasant situation. Licenses alone did them little good. Before they could get talking pictures to the market they had two staggering problems to overcome, both of which took time; they had to build talking picture studios; and they had to learn how to use the apparatus.

For the present, they went to the Victor Com-

pany or similar organizations, and had their silent pictures "scored." They equipped their theatres as fast as they could, and advertised "SOUND" PICTURES all over the fronts of those houses. The public was used to thinking, now, of "sound" or "talk," and for a little while it was taken in. But "sound" was not what the public wanted. They wanted talk.

Warners retaliated to the "sound" advertisements, by switching at last to the long-banned term, "talking picture." They had the fronts of their theatres plastered with Talking Picture signs. The public here gave birth to the term "TALKIE." The thing that had been a theatrical outcast since the days of Edison was now the most sought-after amusement in the history of the theatre. Never had there been a change of front so sudden and so sweeping.

It was autumn, 1928, before any other company got so much as a talking sequence into a picture. Then the results were so crude that they seemed more like experimental work than finished product.

Warners was in an enviable position. They were setting a standard, a very high standard. In three years of work they had learned how to

build studios. Every one of their Hollywood studios was the product of their own workmen. They knew how to build camera booths, etc.; (Warner camera booths were built in their own shops as there was no place where any one could go to buy such a thing!); how to use microphones, how to record. They had trained a large staff. Their directors were used to Vitaphoning. Their technical men were experienced.

Warners used their talking-picture apparatus with the professionalism born of long practice. Admittedly, the product was not what it would be in five years; but it was a million miles ahead of what it had been when the work had first started.

Moreover, Warners had always kept their knowledge a dead secret. No one had been admitted to the lot. They had guarded the studio; for months no visitors had been admitted. Information was vital to the other producers now. All sorts of attempts were made to get it. For, though the others had started building sound-proof studios immediately, work had not gone on as smoothly as they would have liked it to.

Warners began to be besieged by all sorts of subtle attempts to get men into their organization.

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The staff of a movie studio is always being pestered by those who want work. Now it became impossible to know whether they were bona fide applicants, or whether they were spies from other studios. There were not only direct applicants, but "friends."

Another angle was the attempt to lure Warner employees away by promises of big money. Every one of them from the top down was approached not once but dozens of times. They were offered all sorts of fancy money, sometimes as much as four times what they were getting if they would come over to other companies.

Loyalty kept the organization intact. There was a great feeling among its members that they had all been through the hard days together. They would now stay and go through the good times. There was a feeling among those individual men that what special knowledge they had acquired was in a way the property of Warner Brothers, that they had no right to take it elsewhere. Not much information got out.

As a matter of fact, it wouldn't have done much good if it had. The information itself was only half of it. If Warners had thrown the place open

and explained its workings in detail, they still could not have given away the practice, the long training, that made the photographing, the synchronizing, the cutting, of talking pictures a matter of routine instead of a great adventure.

All summer long the other producing companies worked frenziedly to catch up. When they did get their studios built and equipment installed, they found out just how hard it was to use the apparatus professionally.

It involved so much more than just making synchronized photographs and records. It involved dialogue, script writing, scenarios, direction, acting, cutting. A talking picture was different from a motion picture in every branch of the art. If one simply added talk to a motion picture he got an abortion. That's what most of them got. Their first releases were cruder than anything Warner had done, even in the early stages of the game. And Warner's crudities had always been forgivable because they were pioneering.

It was a mad summer in the movie theatre.

Meantime the long list of Warner pictures was steadily growing. Many of them were phenomenal

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successes. *The Terror*, shown in the Warner Theatre in New York paid for itself and made the Warners \$110,000! That was in only one theatre.

When the *Singing Fool*, a second Jolson picture, was released to first run houses in the fall it scored a sensational success. For months it grossed \$40,000 a week in the Winter Garden, New York. During the last quarter of 1928 the Warners made over three million dollars. During the year they made between eight and ten! They could find good use for it. Now they could retrench, could prepare for the future. Now they could buy theatres, guarantee exhibition, meet their rivals fully armed.

The Stanley Company of Philadelphia was one of the largest independently owned chains of theatres in the movie world. It had over three hundred houses. Apart from this, it owned a one-third interest in First National, a huge producing company. In September, 1928, Warner Brothers purchased the Stanley Theatres outright. They followed up this move by acquiring other interests that gave them control of First National. They needed First National for greater production facilities.

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In September, 1928, Stage Six, the fourth of the Warner Talking Picture studios, was completed, a big and magnificent building embodying the last word in the rapidly moving talking picture scheme. Stage Seven was begun, to be completed shortly. Simultaneously a much enlarged recording apparatus was installed in a new building that *also included a record pressing plant*, for Vitaphone was going to process its own records.

In November, 1928, the huge middle-western theatre chain owned by Spyros Skouras, was acquired. The deal ran between fifteen and sixteen million dollars. Skouras himself joined the Warner organization to look after its now huge chain of theatres.

The Warner position was now commanding. From the obscurity of three years before, they had risen to a position of potential dominance in the movie world. While other companies were struggling to make any talkies at all, Warners were releasing *The Singing Fool*. Its song hit was sweeping the country. Think of a moving picture having a song hit! They approached the winter with many, many pictures made, ready for the fray.

One odd angle of the talking picture situation,

and one that gave the producers considerable pause, was the question of foreign sales. More and more, in late years, they had been depending on foreign sales for their income. They figured that U. S. sales paid expenses and broke even, but that the profits came from abroad. The Talkie, of course, was no good for foreign consumption. Even in England, where the audience could understand the speech, they objected to its American intonations, although this objection was mostly based on *The Terror*, which was supposed to be laid in England, and which was cast with only one English accent in the company! It is said that England met *The Singing Fool* with open arms and took back a great many of its former objections to the talkie.

But if American producers began making nothing but talking pictures, what would they do on the continent? For the moment the only answer to this was to make silent versions of their pictures, as well. Warner had always made a silent version as well as a talkie, there being only a hundred or so theatres in which talkies could be shown. The silent picture was made separately from the talkie. As a matter of fact the early

pictures were all made silent, and then talking sequences were made afterwards and cut in.

These silent versions were scored, and thus were available for foreign use with "sound." The thing to be feared was that foreign producers would start making dialogue pictures, thus taking the play from the Americans and getting entire control of the foreign market.

If this should happen it seemed that nothing much could be done about it. It was considered impracticable for any American company to make pictures in foreign language in the United States. The alternative was the possibility of forming foreign subsidiaries which would acquire the rights to stories, etc., and which would cast the picture and film it abroad for the foreign trade.

For the moment these were questions that could not be worried about. It was much more important to get it on the American market, which had gone absolutely talkie and which promised to pour out enough money to make up for any amount of foreign losses.

It was the dawn of a new era in amusement.

In this year, 1929, the talkie is here, and here for the rest of the century. It has followed the

radio into being. It is the offspring of the radio and the theatre, through Warner Brothers, who have made it into mass amusement. It is the mass amusement of this era. It has come a long way, but it's still very new. It will presently acquire all sorts of refinements, all sorts of flexibilities, that are now lacking.

The microphones that require the actor to stand near them will be displaced in time by instruments that will give him freedom of motion. Some day some one will invent a silent camera that will take the cameras out of the booths, and it will be worth more than a single million dollars to him. Practice will make perfect.

The movies were good, but they were limited. Once give an actor a voice, and you'll never get it away from him. We couldn't get it away from the stage. We'll never get it away from the talkie. We'll never go back to the movie.

There may be a place for the movie. But it will be the talkie that furnishes the mass amusement.

There is no use carping at it for its crudities. It makes mistakes. Sometimes it uses the wrong kind of plays, the wrong kind of stories, the wrong kind of actors. Sometimes its dialogue is bad.

Oh, there can be a lot of things wrong with it. But it's going on.

Lots of things we've seen that are wrong today will never happen again. People learn quickly in a world as competitive as that of mass entertainment.

It took a lot of companies working simultaneously twenty years to develop the motion picture to a point of mass amusement. Warner Brothers developed the Talkie in two and a half years.

The highest form of dramatic entertainment will for a long time continue to be the stage. It plays to a selective audience. The Talkie will be the mass entertainment. It will have the faults of mass entertainment; its level will be the mass level. It will be average. But it will be better mass entertainment than the movies were, because it's about three times as hard to make any talkie as it is to make the best movie.

It takes brains. Lots of 'em, from start to finish. No one gets a chance to sluff anything. It sharpens things. You can't make a talkie as you go along, as so many pictures were made. The script and the dialogue all have to be worked out ahead of time, and they all have to hang

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together. There's lots less waste time in making talkies. There's lots more serious effort. Hollywood is genuinely interested in its job for the first time in years.

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